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SYMPOSIUM.

THE ARREST OF TUBERCULOSIS UNDER WAR AND AFTER-WAR CONDITIONS.

THE BRITISH JOURNAL OF TUBERCULOSIS during the past two years has sought to concentrate attention on the problem of tuberculosis viewed in the light of war and probable after-war conditions.¹ War has made it essential for us to readjust our methods of thought and reconstruct our systems of practice in regard to the prevention and arrest of tuberculosis. We have repeatedly urged the appointment of a representative Committee of experts in tuberculosis or the establishment of an authoritative Commission of clinicians experienced in the treatment of tuberculous cases, together with those who have engaged in the organization and administration of tuberculosis work in Great Britain and our overseas Dominions, to collect and weigh all available evidence regarding practical measures bearing on the arrest of tuberculosis and the management of existing tuberculous cases. The opinions here presented indicate the urgent necessity for action in this matter.

¹ The Symposium on "War and the Future of the Tuberculosis Movement" appeared in the issue of this journal for January, 1916, Vol. X., No. 1. The Symposium on "The Tuberculosis Movement under War and After-War Conditions" appeared in the journal for January, 1917, Vol. XI., No. 1. The Symposium on "Tuberculosis among Combatants and War-Workers" appeared in the journal for April, 1917, Vol. XI., No. 2. Other articles and notes which have appeared in "The Outlook" section during the past three years have sought to arouse professional and public opinion to the pressing importance of the tuberculosis problem under existing conditions.

THE BRITISH JOURNAL OF TUBERCULOSIS

FROM SIR A. GARROD THOMAS,

M.P., D.L., M.D., C.M., M.R.C.S.,

Consulting Physician to the Royal Gwent Hospital, Newport; Late President, South Wales and Monmouth Branch of British Medical Association.

10

As far as it is in our power, facilities should be given to enable such tuberculous patients as are physically fit to be trained and to be engaged in healthy occupations. Though there are many desirable occupations available, even that is not enough; the conditions of working must be hygienically and economically right. It is easy enough to train patients in sanitary habits and hygienic customs when they work together in colonies, or are congregated in institutions set apart for tuberculous subjects, but the real difficulty and the practical leakage come when these tuberculous cases return to their own homes and fall back into their old surroundings, and that is where the best and most promising work is to be done; and yet it is the centre of effort that presents the greatest difficulty. There will always be breeding-places for tuberculous cases until people know the value of fresh air and general healthy conditions, and seriously act upon such knowledge; the aim should be to make every home a sanatorium, and until that ideal is reached there will always be fertile nurseries for fresh cases in country and town homes alike. As yellow fever was not stamped out in the Panama district by any curative discovery, but by a successful attack on the breeding-places of the mosquito, the carrier of the fever, so, in addition to using all possible means for the arrest of tuberculous trouble in individual cases, our aim should be to destroy the breeding-places of all tuberculous cases and, I repeat, to endeavour to make every home a sanatorium.

FROM SIR WILLIAM J. THOMPSON,

M.D., F.R.C.P.I.,

Registrar-General for Ireland; Hon. Secretary, Peamount and Rosslare Sanatoria.

The treatment of tuberculosis patients in sanatoria, sent by Insurance Committees and County Councils, since the outbreak of the war has and is becoming increasingly difficult. At least two reasons may be assigned for this state of affairs: *First*, the increased cost of food, fuel, light, linen, materials for upkeep and repairs, etc., on the one hand, and on the other no corresponding increase in the income of the contributing bodies, at least not of the Insurance Committees. Hence it follows that the Sanatoria Authorities are greatly hampered, as on an average the increased grant given for each patient per week, compared with pre-war times, is not more than 25 per cent. (and, astonish-

ing though it may appear, some Committees have not even increased their weekly grant), and the contributing bodies with only the same fund can deal with fewer patients. This state of affairs is acknowledged on all sides as unsatisfactory. *Second*, a most serious aspect of the tuberculosis question, as manifested in the two sanatoria I know something of, having about 320 available beds, is the advanced condition of the disease in patients sent for treatment (which has become more pronounced since the outbreak of the war). Comparatively few patients arrive in the early stage of the disease, and of the balance a large proportion are in the advanced stage. Manifestly this position of affairs is unfair to the patients themselves and to their friends, as well as to the Institutions and to the patients in the Institutions. Sanatoria are primarily established for the treatment of incipient and early cases. Our experience, now extending over five years, is that results of the treatment of such cases are most encouraging; if, however, sanatoria get a large number of advanced cases to treat—and this one fears must now be the case, and likely to remain so until homes are established for such cases—the results cannot be other than unsatisfactory and disappointing. This, in a short time, will lead to a public outcry that sanatoria do not justify their existence. In Ireland the death-rate for tuberculosis for 1916 was 2·15, compared with 2·07 in 1914.

The after-war conditions for the arrest of tuberculosis should embrace the primary links of the chain in dealing with this subject, viz.: (1) Prevention of tuberculous infection; (2) The supply of sanatoria for early cases; (3) After-care treatment for patients discharged from sanatoria; (4) The provision of Homes for advanced cases. Under the first heading would come all conditions which would improve the health of the community, particularly that of the working classes, such as housing, hygienic surroundings, school clinics, etc.; in fact, anything which tends to uplift and strengthen the mental condition and physical state of the people. Sanatoria should be reserved only for early and incipient patients, or those cases which an experienced Tuberculosis Officer considers likely to respond to treatment and with a good chance of recovery. After the patient returns home, he or she should, for some time at least, be under medical supervision, and a liberal after-care treatment in its widest sense must be continued. Lastly, it is felt by all those who have experience of tuberculosis patients, that advanced cases should be sent only to special homes. In this way the chance of infecting other members of the family will be avoided, and poor patients will be properly treated. In addition to these practical measures the question of compulsory notification is one of paramount importance; but one doubts if those in an authoritative position have unanimously decided in its favour. I am of opinion

4 THE BRITISH JOURNAL OF TUBERCULOSIS

that after the war the Departments dealing with the tuberculosis problem will take up the question in a broad and generous spirit, and with the assistance of willing and experienced health helpers, who have done so much during these past three years, marked progress will then be made in the extinguishing of this dread disease.

FROM SHERIDAN DELÉPINE,

M.B., C.M., M.SC.,

Professor of Public Health and Bacteriology at the Victoria University of Manchester; Director of Public Health Laboratory.

The limits imposed by the editor do not give me room for a critical discussion of the subject. I can only express my views upon first principles, and I am obliged to do so in a dogmatic manner: (1) Under ordinary conditions it is probable that most, if not all, adults are or have at some time been infected with tubercle bacilli. (2) In a large proportion of persons tuberculous infection results in trifling lesions, with or without recognizable illness, from which recovery takes place spontaneously when the conditions of life and the surroundings are not unfavourable and the resistance of the individual is normal. (3) Those with normal power of resistance, but living under unfavourable conditions, may be expected to recover when the unfavourable conditions are replaced by favourable conditions, provided the disease is not far advanced. (4) Those with low power of resistance may, under the influence of proper treatment and suitable surroundings, improve and be cured. (5) Before the war there were many persons who, under the influence of adverse circumstances and initial defects, had passed beyond the stage at which recovery could be still expected; of these a fairly large proportion were capable of marked improvement under proper treatment, and others were absolutely incurable. The latter were a potent source of infection. (Some two out of every eighteen deaths occurring annually among 1,000 persons in this country were attributable to mortality among the latter class.) (6) In peace-time association with advanced cases, overcrowding, unhealthy occupations, inadequate feeding, and all the circumstances attending poverty, are the chief adverse circumstances which cause infected persons to pass from the category of cases capable of spontaneous recovery to that of cases requiring treatment. (7) In war-time open-air life may be beneficial to some incipient cases, but, generally speaking, the exceptional hardships which both the combatants and non-combatants have to undergo and the increased opportunities of infection in barracks and workshops result in an increase in the number of cases requiring treatment, and of cases of incipient infection for which the most favourable environments and conditions are

10
4

necessary to prevent the disease assuming a dangerous form. (8) Rural life, which means not only agricultural pursuits, but also numerous other activities connected with village life, including home industries as opposed to industries carried out in crowded factories, is the life most suited to persons slightly infected and capable of spontaneous recovery. (9) The same kind of life is suitable for persons requiring treatment, provided suitable clinical institutions are at hand. (10) With regard to incurable cases, institutions situated in the country also are most suitable. For many years I have advocated, for the benefit of such cases and the protection of others, the provision of *homes of rest or retirement*, where life would be made pleasant by cheerful surroundings, suitable occupations, and reasonable social intercourse. (11) The events of the last three years have shown clearly that one of the first duties of the State is to see that the land under its control produces the essentials of life for the population living on that land, and that our mad pursuit of wealth must be subordinated to this primary need. (12) Both the needs of the State and of the tuberculous patient show clearly that a large part of the population must be made to migrate back from towns to the country, and that the conditions of life in the country must be improved.

FROM ANDREW TRIMBLE,

M.B., D.P.H.,

Chief Tuberculosis Officer for the County Borough of Belfast, and Medical Adviser to the Belfast Insurance Committee.

The Tuberculosis Movement under actual conditions of warfare has been very different from what it was expected to be when war was declared. Since then we have learned—and unlearned—much in medicine as well as in politics and military tactics. On the outbreak of hostilities many authorities believed that military training, in camp and field, would fulfil one of the functions of a campaign against tuberculosis. Open air and change of scene; a good and plentiful supply of food, served to the minute by bugle-call; exercise, supervised and controlled along strictly scientific lines—all these, provided on a national scale, were to produce a new race of supermen. Whatever the result may be on those who come home on the declaration of peace, we have to face the fact that now in the present a steady stream of discharged tuberculous soldiers has begun to flow homewards. Analyzing these, it will be found that generally they fall into four classes: (1) Old tuberculous patients who should never have been accepted for service. (2) Patients apparently cured of tuberculosis (many of whom had returned to arduous work), but who broke down under the strain of

6 THE BRITISH JOURNAL OF TUBERCULOSIS

active service. (3) Patients who from their history have, in all probability, been the subjects of hitherto unsuspected latent tuberculosis, which has become active under the hardships of warfare. (4) New cases of tuberculous infection from undetected cases of tuberculosis. The possibility of the latter is at once apparent when it is remembered how frequently catarrhal affections and infective diseases have appeared as epidemics in camps, for where the causative organism of these diseases can penetrate the *Bacillus tuberculosis* can "follow suit." Undoubtedly these newly discovered and reactivated cases will, both now and after the war, increase the toll of tuberculosis, not only in point of fact, but in point of observation, with the result that, for some years, the death-rate from this disease will rise. On the other hand, as a nation we will reap many advantages, a few of which may be enumerated: (1) The fact that the Pensions Ministry, even now, is making provision for the bed accommodation of advanced cases will supply a hitherto keenly felt want. (2) Not only will adequate treatment be provided for the individual patient, either in sanatoria or otherwise, but his dependents will have their due share of attention, and the spread of infection should thus be limited. (3) Since the discharged soldier will return to every corner of the Empire, a universal demand for a concerted plan of campaign against tuberculosis will arise, caused by the fact of the presence of many tuberculous men and the necessity for their treatment. (4) It is ardently to be hoped that the very attention which the disease has received will bring about a revolution in the curricula of medical schools and hospitals, giving the subject of tuberculosis the position it deserves as a subject to be taught, and not merely to be relegated to the nearest tuberculosis dispensary; for, after all, the campaign against the disease ultimately depends for its intelligent prosecution on the trained general medical practitioner.

FROM P. C. VARRIER-JONES,

M.A., M.R.C.S., L.R.C.P.,

Foundation Scholar, St. John's College, Cambridge; Acting Tuberculosis Officer for the County of Cambridge; and Medical Adviser to the Insurance Committee of Cambridge.

In a former number of this journal it was stated that "the effects of continued active service, the strenuous life in the field, hardship, lack of food, want of sleep, prolonged and severe exertion . . . have been seen to play a most important part in breaking down resistance to and restarting tuberculous processes in those already predisposed to tuberculosis, recovering from this disease, and subjected to infection by

tuberculous material."¹ In other words, tuberculosis is on the increase both amongst the civil and military population. What measures are being put forth to combat this increased outbreak? The "old methods," tried and found wanting before the war, are being strained to the utmost, and the death-rate steadily increases.² Three months' or even six months' treatment at a sanatorium, followed by a return to the conditions under which the disease was contracted, has been shown to be worse than useless. Has not the time arrived to take stock of the position, find out where our present system fails, and, in the light of experience, try to make good its defects? The principles of sanatorium treatment are sound enough; it is the application of these principles in the case of the working man that is at fault. Our sanatoria are filled, for the most part, with cases more suitable for hospital than for sanatorium treatment; but they are religiously put through the regulation three months' treatment and then as religiously discharged; for the whole thing has become a ritual. What becomes of these cases? They go to swell the ranks of the unemployed and unemployable, and thus become a burden to the community. They constitute by far the greatest number of cases of tuberculosis, fill the out-patient departments of our hospitals and dispensaries, and are the means of spreading the disease and gathering in ever-new victims. Is this state of affairs to be allowed to remain unchanged? Granted that better means of early diagnosis will improve the situation, with the medical profession as now constituted it will take at least a generation before any new means will be generally adopted. We must, however, act *now*, and, at any rate in the case of our discharged soldiers and sailors, see that the old methods are not applied. Fortunately, the Pensions Ministry is becoming aware of the magnitude of the danger, and public opinion is gradually hardening to the view that there must be less tinkering with the question and a more thorough method of tackling it adopted. Equality of *opportunity* must be given to *all* cases of tuberculosis discharged from the services. Prolonged treatment must be available, first at a sanatorium colony and then at an industrial colony. Afterwards the cases must be followed up by a rational system of after-care; nothing short of this should be tolerated. A community, which would become largely self-supporting in time, should be started—a colony such as that in course of construction at Papworth, in Cambridgeshire—where ex-service men suffering from tuberculosis may reside, their difficulties appreciated and overcome, their lives made happy by the thought that they are not wandering

¹ Woodhead, G. Sims, and Varrier-Jones, P. C.: "The Tuberculous Soldier," *British Journal of Tuberculosis*, July, 1917.

² It is stated that 500 cases are awaiting admission to sanatoria for the London area alone.

8 THE BRITISH JOURNAL OF TUBERCULOSIS

about in a hopeless fashion, unemployed and, above all, shunned by their fellows, but are engaged in remunerative work, for however small a number of hours daily, assisted by the State, and no longer constituting a danger to the general community. Nothing short of such a comprehensive scheme should find favour with the mass of medical and lay opinion, other than that already prejudiced by preconceived opinions. Let us bear in mind that it is impossible to turn a mechanic into a farm labourer, and that a light open-air job is not the same thing as farm work, and that in any case light jobs usually mean light wages at the end of the week. Rather let us help to demonstrate that many trades, when carried on under ideal conditions, can be undertaken by consumptives without any detriment to their health. We may thus help to bring about the time when all cases of tuberculosis will be treated at a colony, and not be allowed to drift back to surroundings in which they can infect others. The day of a short stay at a sanatorium and a quick return to the workaday world is, we hope, fast receding, and this will come about all the more quickly if we face the facts and refrain from hiding our heads in the sands of complacency. It must be recognized that a consumptive working man with the disease arrested is only capable of doing a certain percentage of the work of that accomplished by a healthy man; this must be accepted as a fundamental truth. *Subsidize the man's labour, and let him live under ideal conditions.* Let the pensions now given to tuberculous ex-soldiers be used for this purpose—for the man's own use, while he is shielded from the fierce competition to which he must otherwise succumb. When treatment and prevention go hand in hand, the "arrest" of tuberculosis will be in sight.

FROM CLIVE RIVIERE,

M.D., F.R.C.P.,

Physician to the City of London Hospital for Diseases of the Chest, Victoria Park;
Hon. Medical Referee to the National Sanatorium, Bournemouth;
Author of "The Early Diagnosis of Tubercle," etc.

Successful arrest of the present increase of tuberculosis presumes a correct understanding of its type and causation. War conditions have, in the writer's experience, strikingly confirmed the potency of two sets of causes in lighting up latent tubercle—among civilian war-workers overwork, often combined with underfeeding; among the military forces continuous catarrhs. The factor of increased opportunity for infection has probably come but little into play during this war. What has been the clinical hall-mark of the tuberculous material provided by these two classes of war-workers? In the writer's experience, the extraordinary prevalence of hilus, or central lung tuberculosis, a condition considered uncommon in days of yore. The symptoms—vague, largely

neurasthenic, accompanied by wasting, chest pains, cough, often of bronchitic type; the signs—narrowed apical resonance on both sides, slight percussion impairment over right lung, often adherent bases, sometimes parasternal and paravertebral dullness pointing to involvement of chest glands—all conditions apt to be overlooked where, as commonly, undue reliance is placed on stethoscopic examination; occasionally involvement of manifest glands in the neck and elsewhere. Shortly, a tuberculosis of childhood type—or, to commit oneself at once to a definite opinion on the matter, the reawakening of a latent childhood tuberculosis. Apical tuberculosis, which this view assigns to fresh infection from without, has been, in the writer's experience, a much less striking feature of the war. The apparent causes have been already outlined: how can these be combated? The civilian war-worker, often morbidly conscientious both as underfeeder and over-worker, must be protected from herself (the cases are largely feminine), and this can only be done by a system of efficient medical inspection of the staffs of Red Cross Hospitals and other institutions employing voluntary helpers. Under conditions of rationing, if these arise, the medical profession should be granted power and facilities for providing needful extras for those who are threatened with active disease. As for the soldier, exposed as he must be to wet, cold, overfatigue, and the virulent "catarrhs" which flourish among crowded communities, his protection is a very difficult matter. More opportunity for the drying of clothes, bedding, etc., and a wider recognition of the perils of prolonged "colds" might achieve something in the way of avoidance. More important still is the elimination of the "subtuberculous" at the outset from all the harsher grades of military service. After-war conditions can be at present but little guessed at, but it is obvious that most of the causes of increased tuberculous disease here outlined will vanish spontaneously. If, however, as is supposed, there will continue a world shortage of food commodities, this will remain a very serious menace, as at present, to the "subtuberculous." Against this may, perhaps, be placed a relative improvement in the material prosperity of the labouring class brought about by pressure of their very natural demands, and sanctioned by the awakened national conscience.

FROM ESTHER CARLING,

M.D.,

Chief Medical Officer of the Berks and Bucks Joint Sanatorium, Peppard Common, Oxon; Acting Tuberculosis Officer for Berkshire.

Were it not for the claims of the tuberculous discharged soldier, it is very probable that work on tuberculosis would be seriously set back by war conditions. The hopes that were raised with the coming

of the Insurance Act have largely died, since it has been found that sanatoria did not provide the expected "cures." The insured person has reason to resent the failure to make good the promises held out to him. The uninsured, unfortunately, has often had to give way to the insured in the small provision made for tuberculous cases. Insurance funds, now at a very low ebb, are further to be charged with heavy burdens on account of invalidity payments to discharged soldiers, and the general public has also to face the bigger general problem of the whole mass of the disabled from the war. But tuberculosis among soldiers is too large a problem to be disregarded, and there are dangers ahead. One lies in the prospect of further heavy expenditure being incurred by the demand for so-called "farm colonies." It should be realized here and now that farm work is suitable only for the very few among phthisical subjects, and these few generally consider themselves too well to submit to a further long period of training. The average consumptive is quite unfit to lift sacks, to load a dung-cart or to pitch corn on a harvest-waggon. Nor should he milk with tubercle bacilli in his sputum; yet if he is to be withheld from one farming operation after another, he is of very little use, and will greatly complicate the economic working of any farm or farm colony. It is instructive that several sanatoria, which at present have farms attached to them, do not attempt to employ their patients on them, although careful schemes of graduated labour are in operation. Another objection to farming for consumptives is the seven-days week of work required and the necessity for absolute and punctual regularity; animals must be fed, crops gathered, however off-colour a man may be temporarily. The "rest in time" as a preventive of breakdown cannot be taken, unless hands are plentiful, so that the special attraction of a "little place to himself" is not an ideal to aim at. Every sanatorium should itself be something of a working colony, and those that can make no provision for a varied scheme of work should cease to exist as sanatoria, but keep their place as hospitals, which just now are urgently required. The three months' stay at a sanatorium colony will give a man an idea as to whether or not he takes kindly to outdoor life; if he does, it should not be difficult to place him in a suitable situation. The majority of cases will be weeded out by a preference to return to their old occupation. Another danger ahead in regard to tuberculosis work is the large amount of preference given to ex-soldiers and the consequent pushing aside of civilians. The pensioned soldier, because better off, is less of a danger than his poorer civilian neighbour, and the claims of public health, which thinks first of infectivity, should not be disregarded for sentimental reasons. The most urgent need at the moment is for the establishment of a Government Advisory Committee of experts who can gather up experience and consider the whole problem under war

WAR AND THE ARREST OF TUBERCULOSIS 11

and after-war conditions. This would then form a nucleus for the work of the Tuberculosis Department of the Ministry of Public Health.

FROM JOHN GUY,

M.D., C.M., F.R.F.P.S., F.R.C.P.E., D.P.H.,

Assistant Medical Officer of Health to the City of Edinburgh; Lecturer on Tuberculosis, School of Medicine, Edinburgh; Late County Tuberculosis Officer for Gloucestershire; Formerly Medical Superintendent, Bridge of Weir Sanatorium.

As far as the arrest of tuberculosis is concerned in war time, little need be expected. Staffs are depleted; schemes have not been carried to completion in many instances, and the anti-tuberculosis work has been so far hindered. Hence we may expect that we shall finish the war with the same tuberculosis death-rate as that with which we entered it. In some centres the mortality may increase. After the war much of our general social activities will come under acute criticism, and the anti-tuberculosis schemes will certainly be pilloried on the ground of the waste of public money. Workers in tuberculosis must remember that the purpose of all our activities is the abolition of tuberculous disease. This is our prime function. If we fail to effect an increasingly progressive reduction in the death-rate, we shall certainly be written down as failures. How, then, can our energies be best directed? The question of tuberculosis has received far too little attention from the Medical Officers of Health in the past, and it is still too much "cold-shouldered." To obviate this, the Tuberculosis Officer, while under the administrative control of the Medical Officer of Health, should have the right of direct access to his Committee, so that he may present directly his own views on the problem. The question of a pure milk supply should be strenuously advocated. A public opinion should be created which would make it criminal for a farmer to have a tuberculous cow in his herd. The Tuberculosis Officer should be the strong advocate, if not the prime mover, of any movement likely to make for the physical betterment of the race, such as: (a) Child Welfare Schemes; (b) Fuller Provision of Open-Air Schools; (c) Provision of more Physical Culture in the School Curriculum; (d) Teaching of Mothercraft and Household Management; (e) Schools for Mothers; (f) Home Visitation by Nurses and Health Visitors; (g) Improved Housing Conditions. This latter I look upon as one of the most essential parts of the anti-tuberculosis work. An endeavour should be made to have a course of Tuberculosis Study as a compulsory part of every medical student's career. In this way the future general practitioner would get a correct perspective of the wide manifestations of tuberculosis, and an adequate equipment, so that he might play his very important part in the eradication of this disease.

FROM S. VERE PEARSON,

M.D., M.R.C.P.,

Medical Superintendent of the Mundesley Sanatorium, Norfolk; Author of
"The State Provision of Sanatoria."

Hitherto the full effects of a gigantic war have not been felt in England. Nevertheless, in spite of little or no unemployment, and a rather higher level of comfort amongst the workers, tuberculosis is probably already more rife and more difficult to combat than before the war. This is largely due to the physical and mental strain so many are going through. As the effects of war come more and more to be felt, disease, and perhaps especially tuberculosis, is likely to increase. War, famine, pestilence, is an established order of things due to natural causes which modern science can do little to mitigate. Amongst the destruction of the vigorous minds and bodies of males in the prime of life which is already being increasingly felt, the shortage of doctors will be conspicuous, and will augment the difficulties of combating disease. When the people wake up fully to the devastating results of war, and when they suddenly realize that their estate is in the hands of the money-lenders, much will depend upon the guidance they receive from their leaders. The staying of the ravages of tuberculosis in the individual and in the community will be but one of many social problems which must depend, as heretofore, upon poverty. If the then leaders think to stem such ravages by expensive schemes financed by the old methods of taxation and public borrowing, their efforts will be doomed to failure.

There is no magic, but many snares, about the "land colony" idea. Of course, all, hale or ill, should live away from the evils of urbanization, and should participate, as far as health allows, in some physical work connected with the land. Sanatoria—*i.e.*, institutions for the tuberculous sick in healthy surroundings where expert medical supervision is generally obtainable—cannot fail to have a beneficial influence in the fight. But these institutions cannot do, even through their educational influence, what could be done by clear-sighted grappling with the evils lying at the root of such social ills as perpetuate the presence of this preventable disease.

FROM W. ALLEN DALEY,

B.A., M.D., B.SC.,

Medical Officer of Health and Acting Chief Tuberculosis Officer for the
Borough of Bootle.

There are two factors to be considered—the seed (the tubercle bacilli) and the soil in which the seed grows (human beings, cattle, pigs, etc.). It is outside the range of practicability to destroy or segregate all producers of the seed, and it is also equally impracticable so to increase the resistance of all who are not now suffering from tuberculosis that they will not develop tuberculosis hereafter. What is practicable, and the best we can do at the moment, is to reduce as far as possible the number of active tubercle bacilli inhaled or ingested by any member of the community, and to take steps to improve resistance to the necessary extent for the bacilli unavoidably taken into the system to be overcome. During the war but little can be done in these directions, save to make the best use of existing agencies and consolidate our forces for a “big push” after the war. But even now we ought to deal firmly with the problem of tuberculous milk. More samples should be taken for bacteriological examination, and the Tuberculosis Order, providing for the slaughter of tuberculous animals, should at once be put into operation again. It would be most valuable if a rapid and accurate method of detecting tuberculous milk could be discovered. With regard to human cases, although an apparently strong man sometimes succumbs to a massive dose, it is usually the weakly who are attacked; the number of future cases will be greatly reduced if these potential cases are picked out when young and educated in open-air schools, where they can be well fed and have abundant fresh air. Contacts of cases should receive particular attention, and night camps for adult contacts would be most useful. We must have long vision when thinking about tuberculosis, and not labour altogether for immediate results. The improvement of housing conditions and of conditions of workshops and factories is essential. The next important point is the discovery of early cases, and this will not be facilitated by restrictive measures adopted towards the notified. The Tuberculosis Officer should cultivate cordial relationships with all medical practitioners in his area, and insist that it is “no trouble” to examine and report upon any suspected case. An educational campaign in which a well-balanced exposition of the problem is set out will produce good results in bringing early cases forward, as well as in improving home circumstances. A tactful tuberculosis nurse can help considerably in conveying to the homes the lessons of the exhibition. Finally, the arrest of tuberculosis in the community is largely a matter of its

14 THE BRITISH JOURNAL OF TUBERCULOSIS

arrest in the individual, unless some brilliant investigator will tell us how the chronic case can be rendered non-infective to those in his immediate neighbourhood. If a case is obtained reasonably early much can be done for him in a sanatorium, provided there is sufficient after-care; work in a farm colony or in afforestation should be encouraged until the disease has been arrested for some time. The chronic case and his management are the most difficult of the many complexities of the problem. Institutional treatment for at least a few weeks is almost essential for instruction, but carelessness at times is the rule in most people, and some people are always careless. Power to compel the compulsory segregation of very advanced and infectious cases who cannot be isolated even tolerably well at home should be universal, and as a necessary corollary accommodation for such cases should be largely extended and made as attractive as possible. But these restrictive measures must be put into operation most tactfully, or early cases will not come forward.

FROM E. HYL A GREVES,

M.D., M.R.C.P.,

Physician to the National Sanatorium for Diseases of the Chest, Bournemouth;
and Visiting Physician to the Y.M.C.A. Farm Colony, Kinson, Dorset.

The large number of men who have broken down from tuberculosis under the severe training and rigorous conditions of military service has forced the medical profession and the public to consider what methods should be adopted and what steps be taken to restore these men to comparative health, and if possible to fit them to earn their living in some suitable open-air occupation. I shall confine my remarks to cases of pulmonary tuberculosis. Many of these men were taken into the army, after a very cursory examination, when obviously unfit. Others in whom the disease had hitherto been latent developed active tuberculous trouble. The majority of these cases are in the first stage of the disease, and consequently favourable subjects for its arrest, if placed under the best possible conditions. In the first instance they should be treated in a sanatorium till the disease has become sufficiently quiescent to enable them to do a certain amount of physical work without undue risk. They should then be drafted into farm colonies carried on, as far as possible, on sanatorium lines, where they could receive instruction in farming and gardening and other open-air occupations. Owing to the generosity of the Committee of the Young Men's Christian Association, such a farm colony has been recently established in Dorsetshire, a few miles from Bournemouth, where I have had the opportunity of watching closely a number of men, dis-

charged from the army suffering from pulmonary tuberculosis in the early stages, whilst undergoing a course of instruction in farming and gardening, etc. The cases are carefully selected, and only those admitted into the colony in whom the disease is quiescent. The results so far are most encouraging. The men come for a minimum period of three months, and at the end of that time suitable situations are provided for them. Occasional breakdowns of course occur, but these should be comparatively rare in carefully selected cases, if a close watch be kept on them during the initial period of training. I feel convinced that the farm colony has come to stay, and that it will enable us to solve many of the problems which confront us in the arrest of tuberculosis both during and after the war. These colonies should prove of the utmost value in educating the public in the means whereby tuberculosis can best be cured and in time eradicated. At the colony in question many of the residents in the neighbourhood not only serve upon the committee of management, but give their time and services in instructing the men in the art of gardening and farming. Every sanatorium ought to be in touch with, if not directly associated with, a farm colony, into which suitable cases might be drafted, the older institutions being reserved for the more serious and advanced cases. Ultimately these colonies should develop into self-supporting communities for the tuberculous, where all classes of cases could find both treatment and occupation suitable to their respective requirements.

ORIGINAL ARTICLES.

TUBERCULOSIS AND THE WAR: "PREVENTION IS BETTER THAN CURE."

BY LOUIS COBBETT,

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TUBERCULOSIS has increased during the war; and the annual numbers of deaths from pulmonary consumption in the years 1913, -14, -15, -16, have been in the proportion of 100, 104, 112, and 112.¹ This increase, though it makes great demands on the machinery devised for dealing with the patients, need not alarm greatly those who have at heart the eradication of the disease.

The example of Paris during the siege of 1870-71 may perhaps reassure us. During that memorable period of hardship and privation the death-rate from pulmonary tuberculosis rose enormously; but not long after normal conditions had been restored it fell, and to a lower level than before the siege; about the end of the decade it rose once more to a point near its original level, and after that continued to pursue the even tenor of its way—a slow but steady decline. The rise in the curve plotted out on paper has the appearance of a factory chimney, and the temporary depression which followed is of such a size that if the chimney were felled and laid in the depression the latter would just be filled up, and the curve of phthisis death-rate in Paris would show an even line, apparently unaffected by the great catastrophe.² In other words, the net result of the siege seems to have been to cause a large number of those consumptives who, under ordinary circumstances, would have died in the years 1872 to 1879 to expire prematurely during 1870-71. It is astonishing that there does not seem to have been a more permanent effect; for one might have expected a great many cases of infection which in normal times would have proved abortive (and we know that there are great numbers of such) to have become active and fatal, and that these would not only have added directly to the total number of deaths, but would have increased the sources of infection from which tubercle bacilli are disseminated, and

¹ Newsholme, Sir A., *Lancet*, October 20, 1917, p. 591.

² Cobbett, "The Causes of Tuberculosis," p. 15, footnote. Cambridge: The University Press. 1917.

thus have laid the foundation of still more deaths in the future. It would seem, however, that this tendency was neutralized by the rapid elimination of many of the existing sources of infection. But, while this experience shows that we need not be dismayed at the increase which the war has caused in the ravages of tuberculosis, it is, nevertheless, desirable at the present time to reconsider the measures adopted for dealing with the disease, especially as these, in consequence of that increase, will have to be enlarged.

For some time before the war the death-rate from tuberculosis in this country had continued steadily to pursue the downward path which had characterized its course for the past half-century. In spite of this satisfactory state of things, murmurs of dissatisfaction have lately begun to make themselves heard¹—dissatisfaction caused by the subsidence of the high hopes placed successively on open-air life, graduated labour, tuberculosis dispensaries and the like, and at the obvious failure of these to influence the course of the death-rate—as if such purely therapeutic means could be expected, short of a miracle, to produce any such result. The truth is, that they have failed to do this (though they have not proved without use in their own way) because they were aimed at the cure of the patient and only indirectly at the prevention of the disease. It is the object of this communication to plead that these aims be kept apart, in our thought if not in our practice, and to show, if it can, reason why this must be done if the eradication of tuberculosis is to be accelerated further by human endeavour.

The need for this separation of aims will be evident on considering that the best treatment does but stave off death in many cases and fails to cure; it prolongs life, and, thereby, lengthens the period of infectivity of the patient; and thus it multiplies the sources from which spring all but a fraction of the tuberculous infections. Some cases, I gladly allow, are cured outright and prevented from becoming sources of infection; but it is to be feared that these are not numerous enough, even when aided by the hygienic education of the incurable patients, to do more than balance the harm done by prolonging the lives of these latter.

I have recently been called to task for saying of sanatoria (of course in respect to their effect on prevention only) that what they give with one hand they take away with the other, and my attitude on this question has been thought "surprising" in an advocate of segregation "because the provision of ample sanatorium accommodation automatically helps to solve the problem of segregation in the least objectionable manner."² But I think that sanatoria really afford in the long run but little help in this direction, and there is danger lest

¹ See leading article, *Lancet*, *loc. cit.*, p. 611.

² *Ibid.*, p. 607.

by overrating their service we fall victims of a false complacency, and wrongly conclude that we are doing everything which can be done for the prevention of tuberculosis. Sanatoria, it is hardly necessary to point out, are designed for treatment, and not for prophylaxis. If the latter were their aim, they would select for preference advanced cases in the most infectious stages of the illness, and they would avoid, as far as possible, patching up incurable cases. But they do neither of these things; rather they do the very opposite; for they seek out early cases (which are not really early enough to be cured) and they convert acute disease into chronic. The truth, then, must fairly be faced; sanatoria, as at present conducted, do little for the cause of prevention, and this conclusion applies not to them only, but to dispensaries also, and to most of our machinery for dealing with the tuberculous.

I hope I shall not be misunderstood; I am not attacking these institutions; I recognize fully that they are doing good work in their proper sphere, which I take to be the alleviation of existing suffering. This cause appeals strongly to the human heart, and is little in need of an advocate. But that organ is curiously irresponsible to the claims of the healthy for protection—owing, I suppose, to lack of imagination. It is an old saying that "prevention is better than cure," but although this proverb is in everybody's mouth, there are few who swallow and digest it. That cure comes before prevention in the thought of our administrators is shown by a paragraph in Newsholme's paper to which I have already referred. Part of the duty of our Tuberculosis Officers, it appears, is the examination of home contacts, and this is one of the most promising of their many activities, because it aims at seeking out those really early cases which are susceptible of being cured outright, and thereby removing what, otherwise, would become future sources of fresh infection. Yet this duty is one of the first to be dropped when the demands on the Tuberculosis Officer become too onerous.

But while I am contending that prevention and cure should, in the interest of clear thinking, be kept apart in our minds as two distinct and, perhaps to a certain extent, even conflicting ends, I think, nevertheless, that in practice it will be expedient that both be followed in the same institution. The segregation of advanced cases, which I have at heart, would become needlessly unpopular and difficult if it were to be attempted in institutions devoted entirely to this purpose, and from which hope of recovery was excluded. Compulsion must be avoided at all cost. The thing must be done with the good-will of the people concerned or not at all; and I would a thousand times rather have a smaller measure of segregation than stir up such hostility as even the most urgently necessary and successful measures of compulsory prophylaxis have done in the past. But tuberculosis is so frequent

that anything like a complete scheme of segregation for all infectious cases is out of the question, and there is little doubt that all the accommodation for such as can be provided in the near future will eagerly be taken up if care be taken to make the invitation attractive. And this can readily be done by proposing to put advanced cases into institutions designed for healing, where no hard and fast line is drawn between the curable and the incurable, and where the hope of recovery is common to all.

The new sanatoria, then, must arrange to deal both with early and advanced cases. They must not compete with one another, like the old, in their statistics of cures, but, on the contrary, must make special efforts to get incurable cases during the most infectious stages of their illness, and particularly those cases whose circumstances, domestic or industrial, make them at this period most dangerous to their neighbours.

This will involve the provision of far more sanatorium accommodation than exists at present, for not only must cases be admitted which were previously considered unsuitable, but the period of residence must be much longer than before. This policy will perhaps seem to many to be beyond the range of what is practically possible. But it is not proposed to make more than a beginning now. By degrees the amount of accommodation will increase, and each year, as tuberculosis continues to decline (as, but for the war, it would now be doing), the problem will become more manageable and the proportion of dangerous cases, which it is possible to segregate, will steadily increase.

The long period of residence contemplated will make it necessary to provide for the occupation of the inmates in ways not yet attempted. Games and recreation will not suffice, but serious work will be demanded to which a man may give himself daily without violence to his self-respect, and which even may be brought to contribute materially to the cost of his living. The new sanatoria, then, starting from small beginnings, should aim at becoming industrial colonies, furnished with workshops where handicrafts, as varied as possible, and including those, if any, which are characteristic of the district, may be followed, and provided, above all, with ample grounds for gardening and agriculture. At the same time the needs of those whom advanced disease has rendered incapable of work or exertion of any kind must be met by liberal provision of winter gardens under glass, and warmed and cheered in winter by the sun, where these unfortunates can pass their days as pleasantly as is possible. In such institutions it seems possible to make a new beginning to deal directly with the problem of the prevention of tuberculosis by attacking the disease at its very source.

THE TUBERCULOUS ARMY RECRUIT.

By P. JACOB GAFFIKIN,

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ONE of the most hotly disputed questions which has arisen in connection with the war, and one on which there appears still to be much difference of opinion, is, how far we are justified in recruiting for the Army men who show signs of pulmonary tuberculosis, either latent or arrested, or who give a definite history of previous tuberculous infection. One hears various arguments advanced in justification of the acceptance of such recruits, such as the well-known abundance and excellence of Army rations, the regular hours and discipline of Army life, and the completely open-air existence of the occupants of the trenches, all of which are urged as providing an excellent set of conditions for the "cured" consumptive. Some practitioners and institutions have even been known to boast of the number of former patients who are now serving with the Forces. But such arguments are usually advanced by enthusiasts at home, with their mental picture of life at the Front drawn from what they see in training-camps or in the illustrated press, and this slight account of experience with cases of pulmonary tuberculosis, gathered while serving on the Western Front, may be of interest.

Having an opportunity, while serving at a Rest Station behind the line, of examining a large number of cases sent back, not so much for any specified illness as for minor ailments, which it was hoped would be overcome by a three weeks' rest, I adopted a routine of making a careful examination of the chest of every man, and to my surprise—for it must be remembered that these were picked men, passed as fit for general service—I found a large number giving the complete clinical picture, both in symptoms and signs, of pulmonary tuberculosis. Of these, the large proportion were, of course, early cases, such as would be classified as Turban-Gerhardt, Class I., for cases of more advanced disease, if such were found—as, from my experience elsewhere, I think probable—did not come to the Rest Station. As these cases were drawn from all the Divisions in a Corps, and comprised men recruited from all parts of the kingdom, it will be admitted that the material was representative and sufficient, both in number and

variety, to allow of valid conclusions being drawn. On estimating the percentage of cases of phthisis pulmonalis in the total number of cases admitted to the Rest Station during a period of four months, I found that the number of cases diagnosed as phthisis amounted to 1.9 per cent. Of these cases, only a small proportion—less than 7 per cent.—gave a history of previous disease, or of treatment in a Sanatorium or Chest Hospital. So it must be argued that a large proportion developed clinical phthisis during their service, while in the trenches and subject to all the benefits which abundant rations and the admittedly copious ventilation of the fighting area are supposed to confer.

What probably occurs is the lighting up of a dormant tuberculous focus, no doubt dating from childhood; for if, as we are often told, phthisis is but the end of a lullaby sung at the cradle of the future consumptive, the exigencies of war stir its peaceful "aria" to a wild "crescendo." When this is what occurs with so large a proportion of healthy men, who at the time of their enlistment, at least, suffered from no obvious disease, how much greater is the probability of a serious breakdown in the case of the known consumptive, whose apices certainly harbour a mine which may be fired at any moment, and whose hold on health, even in the calmer surroundings of civil life, is at best precarious. In these days, when we hesitate to speak of the disease as "cured," but classify our most favourable results as "arrested," it is surely unjustifiable to expose them to conditions which are too much for a large number of the healthy population.

Several times I have been asked what is the factor that aggravates the tuberculous disease in these cases, so that, in spite of good and ample food and an open-air life, the tuberculous soldier succumbs so easily. It may be briefly stated as the absence of what is in every form of phthisis treatment regarded as essential—rest. In the trenches there is no rest. Sleep is sometimes possible, but it has to be snatched when one can get it, and even those periods when the Unit leaves the trenches and goes into what is euphemistically termed "rest," afford nothing at all comparable to the conditions which would be observed for a case of "arrested" phthisis. No matter what elements in a military life in time of war are regarded as of advantage to the phthisical, this one factor of the impossibility of adequate rest should be enough to outweigh them all.

The French, whose example in matters in connection with recruiting we would in many ways be wise to follow, make it an axiom that a definite history of tuberculosis, with the exception of tuberculous lymphadenitis, is to be regarded as a bar to enlist-

ment; and when it is clearly demonstrated, as in my figures from the rest camp quoted above, that the war is going to provide us with a multitude of phthisical cases needing care and treatment, surely we need not reinforce them by enlisting those who are morally certain only to provide occupants for our Military Hospitals, and material for the deliberations of the Pensions Board.

TUBERCULOSIS AND A MINISTRY OF HEALTH.

By W. H. DICKINSON,

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ONE of the greatest difficulties that will beset the Ministry of Health, when it is established, will be to provide means for the proper handling of the Tuberculosis Problem. It has long been evident that the eradication of tuberculosis is a national question of the first importance. The arrest of the disease can only be achieved by complete co-operation of all interests concerned and co-ordination of all measures for prevention and treatment.

When the National Insurance Act, 1911, became law, extravagant hopes were entertained that its "Sanatorium Benefit" clauses would speedily produce a substantial effect upon the prevalence of tuberculosis and the mortality from the disease. It was soon realized, however, that the new system was only dealing with the fringe of the subject, and that large sums of money were being expended without any adequate return, so far as a reduction in the number of deaths from tuberculosis was concerned.

Since 1913 pulmonary tuberculosis has increased its toll of victims each year, especially in the industrial districts, and Sir Arthur Newsholme has recently shown that in 1915 and 1916 the excess amounted to 12 per cent. Newcastle-upon-Tyne may be taken as a fair sample of urban centres providing abundance of work of an arduous nature, bearing an unenviable reputation for overcrowding, and containing a large number of people who feel the pinch of poverty. The number of deaths, from phthisis, registered in the city (residents only) rose progressively from 297 in 1913 to 388 in 1916, and for the first nine months of 1917 the figure stands at 326. Owing to the absence of many soldiers on active service, it is impossible to indicate to what extent the male population has participated in the increase, but very

TUBERCULOSIS AND A MINISTRY OF HEALTH 23

significant is the fact that 154 female deaths occurred between January 1 and September 30, 1917, as against 126 during the whole year 1913. If the age-period 15 to 35 years be considered separately, the figures are 84 and 63, and during the past quarter (July 1 to September 30, 1917) the female mortality is greatly in excess of the male (by 44 per cent.).

The serious increase in the death-rate amongst women is, presumably, very largely due to the fact that so many subjects of latent tuberculosis, previously unaccustomed to long hours of hard work, have recently responded to the call for labour in munition factories and elsewhere. Three years of war conditions have demonstrated, in striking fashion, that deaths from pulmonary tuberculosis do not occur simply from exposure to tuberculous infection, a condition which is practically universal in all civilized communities. The spread of the disease is in great measure to be viewed as the result of adverse conditions of housing, industrial occupation, and personal nourishment.

To reduce the existing mortality from tuberculosis, it is essential to focus attention on the predisposing conditions. Then we shall see how best to eliminate all the factors which enable the tubercle bacillus to overcome the natural resistance of the individual.

While other State Departments will, doubtless, deal with factory welfare work, the provision of adequate housing accommodation, improved sanitation and the amelioration of the conditions of the working-classes generally, the Central Preventive Wing of a Ministry of Health should advise the Minister of Health as to the promotion of such research work and legislative measures as will assist in stamping out tuberculosis, and as to the facilities required for treatment.

It should also supervise the work of the local committees and organize experimental schemes, such as farm centres or labour colonies for consumptives, and possibly village "settlements" for phthisical subjects and their dependants.

In any complete scheme the Tuberculosis Dispensary will probably remain the headquarters and dynamic centre of local efforts, and should be developed on the lines laid down by Sir Robert Philip. The most important functions of a tuberculosis dispensary are as follows: (1) To collect statistics and information; (2) to facilitate early and accurate diagnosis by co-operation with the general practitioner; (3) to classify cases and "suspects" with a view to future treatment; (4) to search diligently for evidences of tuberculosis amongst "contacts"; (5) to carry the principles of prevention into affected households; (6) to serve as the connecting-link with the Chief Preventive Officer of the area, and thus insure proper disinfection of infected houses, clothing and bedding, and also secure the inspection and rectification of insanitary dwellings, etc.; (7) to provide treatment in special cases

and for patients while under observation. The tuberculosis section of the local Health Committee or Council will be mainly concerned with the welfare and treatment of all sufferers from the disease, and their dependants, but it should also foster a continuous publicity campaign by lectures and through the medium of the Press. It will be advised by the Tuberculosis Officer, and should have subcommittees to deal with treatment, relief, and employment, on lines similar to the local War Pensions Committees.

The Treatment Subcommittee will recommend, for each case coming to its notice, such treatment as is judged to be most suitable, and this may be given either at a sanatorium, hospital or dispensary, or in the patient's own home. Increased accommodation will be required for "advanced cases," and the proper care of cases of so-called "surgical tuberculosis" which, at the present day, is the bugbear of the general hospital. Recent experience has shown that sanatorium treatment of pulmonary tuberculosis, among the working-classes at all events, is a very qualified success. Residence in a sanatorium in any case occupies only a short phase in the consumptive's life, so that the greatest need of the future is to concentrate attention on the improvement of the conditions under which "Domiciliary" treatment is to be carried out.

The Relief or "Cases" Subcommittee must have ample funds at its disposal, but with proper supervision it can be arranged that the money will not be wasted. It has been estimated that at least one-eleventh part of all Poor Law Funds are expended on the relief of poverty resulting from tuberculosis, and at present there is no certainty that these moneys are assisting to reduce the prevalence of the disease. The income of an affected household must be supplemented, if necessary, so that every case of open phthisis can have at least a bed, and preferably a room, to himself, and to insure that the family will not lack the necessities of life.

It would be impracticable, not to say unwise, to attempt to segregate every patient with tubercle bacilli in the sputum, but very many young lives could be saved by isolation at home. If an individual is unwilling to take precautions to prevent the spread of infection, or unable to receive proper attention at home, removal to hospital should be insisted upon in the public interest.

The Employment Subcommittee should keep a register of tuberculous cases unable to stand hard or continuous labour, and make every endeavour to secure light and suitable work for them, so as to prevent undue depletion of the funds of the Relief Subcommittee.

If the new Education Act is passed into law, and the "leaving" age for scholars raised to sixteen years, the Employment Subcommittee could collaborate beneficially with the Juvenile Employment Agencies

by assisting in the choice of a calling for children showing the stigmata of latent tuberculosis, or encouraging the emigration to the colonies of children of tuberculous parents.

It is a matter for regret that the Pensions Minister has not dealt with discharged soldiers in a more progressive way, for he has allowed a golden opportunity of instituting prophylaxis to pass beyond his grasp.

Tuberculosis, being a communicable disease, could surely have been treated differently from other disabilities. At the present moment large sums are being expended in pensions, to ex-service men, and allowances to their families, without any practical safeguard to guarantee proper treatment or any precautions against the spread of infection. Had the tuberculous soldier been sent, as a soldier, to a civil institution (hospital or sanatorium) in the same way as one suffering from, say, scarlet fever, the case would have been very different. Once near his native place the best line of treatment could have been decided upon by those conversant with the home conditions, and then, after an interval, the patient's discharge from the Army could have been expedited. Half the pension granted could have been paid from the Pensions Office direct, while the other half, which is "conditional," could have been paid weekly along with any allowances through the local office when it was seen that the patient was taking advantage of every facility provided to better himself and prevent the infection of his relatives. Such action would have only constituted justice for the patient and justice for his family.

The chief conclusions to be drawn from the above contentions are as follows:

1. Present methods (with certain reservations) are on the right lines, and, with adequate financial backing, adjustment in some respects and extension in others, will do much to reduce the mortality from tuberculosis.

2. Attention must be concentrated on the improvement of "Domestic" treatment and the prevention of massive infection in the home.

3. Legislation is urgently needed to deal with—(a) The supply of tuberculous milk; (b) careless and helpless infective patients.

4. Increase in the residential accommodation for surgical tuberculosis is much needed, and especially for children.

5. The conditions of labour should be improved, and Welfare Work in factories should be extended, especially with a view to the avoidance of industrial fatigue.

Finally, I would urge that in order to further the co-ordination of measures making for prophylaxis and treatment of tuberculosis, the establishment of a Ministry of Health is much to be desired.

THE FUTURE OF THE ANTI-TUBERCULOSIS CAMPAIGN.

By THOMAS E. NUTTALL,

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It is gratifying to note that two campaigns, both of which make for the health and welfare of the community, are in progress simultaneously, though unfortunately they have been seriously impeded by the war. Whether it be a pure chance that the campaign against tuberculous disease in man happens to coexist with the clean milk campaign, one cannot well say; but of this I am certain: both movements merit the heartiest support of the public, as well as of the medical profession. Moreover, it is highly desirable that the two sets of campaigners should support and supplement each other's efforts, for their aims are in large measure identical, namely, the eradication and prevention of tuberculous diseases in man and in cattle.

Whilst it is fully recognized that the adoption of measures for securing a supply of fresh milk, which shall be at once clean and free from pathogenic organisms, constitutes an important part of the anti-tuberculosis campaign, it is not proposed to deal with this phase of the subject in the present article. The writer intends for the nonce to limit himself to a review and criticism of the procedures adopted under the Health Insurance Act for the purpose of combating tuberculous disease in man. He proposes in this connection to urge the importance of enacting and enforcing more direct preventive measures than have as yet been adopted.

In order to prosecute the anti-tuberculosis campaign effectively, it is necessary in the first place to obtain a general knowledge of the nature and causation of the disease against which it is for the most part directed. Phthisis pulmonalis, the commonest and most fatal variety of tuberculous disease, is decidedly infectious. This feature needs to be emphasized, for it is apt to be overlooked by the public; but it should never be lost sight of by those who are fighting tuberculous disease. The danger of sufferers infecting non-sufferers is considerable, particularly so in the small rooms of the small houses of the industrial classes, where the inmates are of necessity thrown into close contact. In view of the infectious nature of pulmonary tuberculosis, sanatoria possess considerable value, in that they secure complete isolation during the period of the patient's residence therein; and this segregation not only benefits the patient personally, but aids in preventing the spread of the disease to others.

Phthisis pulmonalis differs markedly from most other infectious diseases in that it is almost invariably lengthy in duration, whereas most infectious diseases are acute and of short duration. True, there is an acute variety of tuberculosis of the lungs known as "acute pneumonic phthisis" or "galloping consumption," but, fortunately, this type is comparatively rare.

One has read of the ravages of the "black death," or plague—how from time to time it literally decimated the urban populations of Europe and Asia—and one has pictured this disease as like unto a black monster stalking across these continents, yet making a halt here and there to deal death-blows to tens of thousands of the people. But even this monster was not always in progress, indeed, for quite long stretches of time he remained quiescent. *Per contra*, the "white scourge" is always active; it indulges in no lulls, it is never quiescent.

In its varied forms, tuberculosis is responsible for one-ninth of the total death-rate of the United Kingdom. It claims a toll of over 50,000 victims in England and Wales each year. "In the administrative county of Lancaster, with a population of about one and three-quarter millions, there are over two thousand deaths annually from tuberculosis: pulmonary tuberculosis, or 'consumption,' being responsible for the majority of these deaths." In Great Britain the last-named disease holds at least 150,000 persons in a state of disablement during what should be the working or productive years of their lives. It is calculated that in the United Kingdom there are in perpetuity about 500,000 persons who have sustained infection by the disease, although they are not disabled thereby. Truly, this is an astonishingly large figure, yet it is probably much below the actual number. Tuberculous disease is the direct cause of one-eleventh of the pauperism existent in England and Wales, and thus imposes a heavy annual charge on the State apart from the commercial loss it occasions.

Everyone is familiar with the representations of Father Time as a reaper bearing his scythe, and we have all come to realize that this reaper sometimes "gathers in" the young, although for the most part he reaps the time-worn and old. On the other hand, the "white scourge," consumption, like a cruel malignant monster, betrays a predilection for youthful victims, investing them with beauty whilst destroying them. Truly, the ravages of phthisis pulmonalis are appalling; yet medical science assures us that this disease is preventable. Knowing this, one feels confident that, if the anti-tuberculosis campaign is continued on sound lines, the time is not very far distant when pulmonary tuberculosis will be comparatively rare. But if victory is to be achieved in the fight against this disease, it is essential that its cause or causes shall be clearly understood.

Unquestionably, the exciting cause is the bacillus discovered in 1882 by Koch, and known as the "tubercle bacillus." Still, it may be questioned whether, in the case of tuberculosis of the lungs, the predisposing or contributory causes are not, in some respects, more potent than the exciting cause. Certainly they seem to possess much potency in determining whether a person shall or shall not sustain an attack of this disease; for although it is known that almost every person at one time or another inhales the tubercle bacillus, yet the great majority escape the active form of the disease. It seems clear, therefore, that the tubercle bacillus can only flourish in a suitable soil; and this being so, one is prompted to ask, What conditions of the body or of the environment, or of both, favour the development of this bacillus in the lungs of human beings? In general terms it may be answered: Anything which lowers the vitality of the body, and thus weakens its power of resisting disease. Insufficient or improper food, insufficient or unsuitable clothing; more particularly, anything that weakens the disease-resisting power of the lung tissue, such as the breathing of stagnant or dust-laden air. From these statements it is manifest that the stagnant atmosphere which so often obtains in slum areas, crowded as they are with small dwellings, which in turn often consist of one or two small rooms, is particularly favourable to the onset and spread of the disease under consideration. In my judgment, faulty housing is the most potent factor in the causation of phthisis pulmonalis, and believing this, I hold that unless and until the people of this country are provided with larger, lighter, and more airy dwellings the disease will be common. So long as the houses of the industrial and poorer classes are crowded together, and so arranged that fresh air and sunlight cannot gain free access to them, phthisis pulmonalis will prevail among these classes. In order to eradicate tuberculosis, it is necessary to cease building cottages in long, unvaried, uninviting rows—

"Miles of brick and stone, in endless monotone"—

cottages as near alike as so many peas, or as the bricks of which they are so often built. There ought never to be more than two or three houses in a block, and the several blocks should be so disposed on the land that fresh air and sunlight can find ready access to every room of every house. Moreover, each house should possess a garden, or land for one, after the manner of houses in "garden cities." Suitable houses having been provided, slum property should be demolished, and should not be allowed to re-form. In this connection it is well to recall the figures adduced by Dr. A. M. Williamson, Medical Officer of Health of the City of Edinburgh, anent the incidence of phthisis pulmonalis in one-roomed, two-roomed, three-roomed and four or more roomed houses respectively. Dr. Williamson shows that the highest incidence of, and

also the highest death-rate from, tuberculosis of the lungs occur (a) in the poorest localities of Edinburgh; (b) in the smallest houses, particularly in the one and two-roomed dwellings. Dr. Williamson further shows these findings to be true, not of Edinburgh alone, but also of Glasgow and Greenock. The actual figures for the city of Edinburgh covering the years 1910, 1911, and 1912, are as follows:

			1910.	1911.	1912.
One room	...	...	6.1	7.4	6.9
Two rooms	...	...	3.4	4.8	5.6
Three rooms	...	...	2.1	2.7	3.5
Four or more rooms	...	...	1.0	1.0	1.4

Furthermore, Dr. Williamson finds that pulmonary tuberculosis is more prevalent in those wards of the city of Edinburgh which contain the highest number of inhabitants living in one or two-roomed houses.

It is also interesting to note that the Commission appointed by the Faculty of Insurance to inquire into the working of the Insurance Act reports: "It is impossible to expect fully satisfactory results from any of the health services unless and until housing conditions, both urban and rural, are improved." Such findings harmonize with one's personal observations respecting the ætiology of tuberculosis of the lungs. These and other facts force one to the conclusion that, as a country, we have not yet got to grips with the tuberculosis problem.

Personally, I find it difficult to believe that the difference in the death-rates from phthisis pulmonalis shown by Dr. Williamson to obtain between the dwellers in one-roomed houses and the dwellers in four or more roomed houses is due solely to the difference in air space, or even to the difference of air movement in the two cases. Probably the cause of the very high death-rate from phthisis pulmonalis in the one and two-roomed dwellings is not simple, but composite, being made up of such factors as insufficient clothing and food, insanitary conditions generally, and habits of improvidence and intemperance. Yet, even when due allowance is made for these minor contributory factors, there can be no question that the small number of rooms, involving insufficiency of fresh air, is the chief cause of this high death-rate from tuberculosis of the lungs. There is no denying that the breathing of stagnant slum air is often the determining cause of a person sustaining an attack of the disease just named.

Hitherto we seem only to have secured the isolation, and possibly the cure, of a number of sufferers, whilst we attempt little or nothing in the way of prevention. The scheme of the National Insurance Act is good as far as it goes, though it must be recognized that it almost lacks preventive measures. The net result is that, whilst treating and endeavouring to cure some cases, we are all the while allowing others

to be manufactured in the small and oft-times sunless homes of the manual labourers. In medical science there is an excellent injunction regarding the treatment of disease: "Seek, and if possible find and remove, the cause of the disease." This maxim should be applied with vigour to pulmonary tuberculosis, particularly to its contributory or predisposing causes.

It may be well to examine in some detail what is being done in the way of combating this disease by the Lancashire county authorities. There are now twenty-two dispensaries established out of a contemplated thirty. A number of sanatoria have been built and staffed, and tuberculosis officers and nurses appointed. It is now possible to isolate a large percentage of the patients notified as suffering from phthisis pulmonalis, but as yet not more than two-thirds of those notified find their way into the sanatoria, many patients manifesting an unwillingness to enter these institutions; whilst the local authorities, with a few exceptions, lack the power of compulsory isolation. Furthermore, it has been found that, of those who reach the sanatoria, only one-third are in the first stage of the disease—that is to say, only 22 or 23 per cent. of the sufferers reach the sanatoria in a "curable" condition. Clearly, this is a lamentable state of affairs; for it denotes that, as a curative agency, the sanatorium is failing to accomplish what was expected of it. True, it would be considerably more useful curatively, provided a larger number of sufferers had their condition more promptly diagnosed, notified, and treated. In this connection it should be noted that the central tuberculosis officer and his staff, together with the Lancashire County Council and the Lancashire Insurance Committee, are striving to secure earlier diagnosis of phthisis pulmonalis, and to have this followed up by immediate sanatorium treatment. After a time, no doubt, a larger percentage of patients will reach these institutions in the first stage of the disease, and as a result a larger number of sufferers will obtain a cure. But even when early diagnosis and treatment have been secured, the chief benefits of the sanatoria must still be those of isolation and education, not cure. Ere many years have elapsed these institutions will have achieved all that it is possible for them to accomplish; yet even then, in the absence of better housing of the industrial classes, this dire disease will, I feel certain, continue to slay tens of thousands of Britons each year.

Nothing short of vigorous preventive measures can effect a marked reduction in the incidence of, and death-rate from, tuberculosis of the lungs. After all, this is exactly what might be expected when it is recalled how other diseases have been successfully combated, and all but eradicated. In the case of smallpox the central authorities adopted preventive measures in the form of improved sanitation and hygiene, together with compulsory vaccination, and backed up these measures by

establishing special hospitals all over the country, for the purpose of isolating the sufferers and so preventing the spread of the disease. In like manner, with regard to "consumption," every authority—county, urban, and rural—ought to possess powers of compulsory isolation of persons affected. Moreover, the central authority ought to adopt measures directed towards the prevention of the disease, more particularly by promoting an extensive scheme of housing reform and town-planning, such as the one recommended by the National Housing and Town-Planning Council. This council estimates that 160,000 new houses will be required annually for the ten years following the declaration of peace. It would seem that the Lancashire County Council is convinced of the comparative failure of the sanatorium as a curative agency, for it has decided for the present to develop the domiciliary treatment provided under the Insurance Act. It is intended to encourage this form of treatment until such time as, the war being over, housing and town-planning can be proceeded with.

Whoever—either Minister of Health or other official—will supply our industrial and poorer classes with more airy and commodious dwellings, and will, further, insist on the institution and maintenance of hygienic conditions in the homes and workshops of our land, will have the honour of achieving one of the most important reforms ever brought about by man; a reform which is capable of saving more precious lives and of yielding more happiness than a dozen of the projects commonly pursued by politicians. I am convinced that twenty years' earnest reform work directed to town-planning and the better housing of our people would reduce the death-rate from tuberculosis by at least one-half.

INSTITUTIONS FOR THE TUBERCULOUS.

THE RED TRIANGLE TUBERCULOSIS FARM COLONY.

THE Y.M.C.A. has accomplished such notable service for our combatants and war workers that it seems only reasonable to expect that agencies for the assistance of the tuberculous should be established under the beneficent sign of the Red Triangle. An interesting experiment is now being conducted under Y.M.C.A. auspices. At Kinson, not far from Poole, in Dorset, a Farm Colony has been started. The Colony is intended for the training in agricultural and industrial pursuits of discharged tuberculous soldiers. The National Council of Young Men's Christian Associations have purchased thirty acres of land; of these twenty-six are being used for the purpose of the Colony. Patients must be cases with the disease arrested in an early stage, and who are likely, within a few weeks of admission, to be able to undertake a normal day's work. The men live in wooden chalets, distributed over a sheltered and wooded portion of the Estate. Each chalet is divided into two sections, each containing two beds. The buildings have been designed for the purpose of a Sanatorium, and have been previously used for this purpose. They are well ventilated, and have large windows on two sides. The soil on this part of the Estate is gravel and sand. A good supply of water and gas is available. The Central Building contains dining and recreation rooms, kitchen, and offices for the staff. There is space available for recreation, and sufficient area for the cultivation of vegetables and fruit, the keeping of bees, and the rearing of poultry and pigs. Colonists are now in residence under expert direction. More extensive farming operations will be undertaken later, when the rest of the property comes into the possession of the Committee. It will then be possible for the men to get a fair insight into farming operations on a partly arable and partly pasture estate. Dr. T. D. Acland acts as Medical Adviser, and examines the patients who are sent down from London, and Dr. Hyla Greves, of Bournemouth, attends as the Visiting Physician. Patients are given such work as they can perform with benefit to their health, and by a system of graduated labour they are restored to full working capacity. Idleness is not permitted except in those patients whose condition demands absolute rest. The Colonists are boarded and trained and receive 1s. per working day during their stay. The aim of the experiment is to provide means not only for the restoration of health, but to supply a training which shall enable the men to make a fresh start

in life by giving them an insight into various outdoor occupations and an interest in country pursuits. Every effort is made to secure suitable occupations when the time comes for the Colonists to leave the settlement. When well enough to do so, the patients make their own beds, change their bed linen, clean their wards and windows, polish the floors of the adjacent corridors, and keep the dining-hall clean and the brasswork bright. In addition, they wash their plates, knives, and forks after meals. This work, it is contended, teaches the patients to help themselves and, at the same time, effects considerable economy. The work and exercise are carefully graded under medical direction to suit the condition of health of each Colonist. The following dietary has been found satisfactory :

Breakfast: Porridge, eggs, bacon, fish, bread, and tea.
(Milk under medical advice.)

Dinner: Meat and two vegetables, pudding, cocoa.

Tea: Bread, butter, and tea.

Supper: One hot dish, bread, cheese, cocoa, milk or fruit drink.

The average actual cost of food per head has been estimated at 13s. 6d. per week. The estimated cost of maintenance of each patient, including established charges, proportion of staff charges, etc., is One Guinea per week per head. Members of the Colony are asked to sign a form pledging themselves to abide by the rules and regulations of the Colony. These are framed entirely in the interests of the Community, and with a view to ensuring that each resident derives the maximum benefit from the treatment and training. There is no compulsion, simply an appeal to each individual to consider his own future prospects. The Committee hope to make the farming operations a satisfactory commercial undertaking. They do not see their way, however, to covering the cost of maintenance of the patients, plus the special Sanatorium treatment and training. Capital expenditure amounting to £4,000 has been involved in the purchase and erection of suitable buildings for this work. The National Council do not expect to see any return on this Capital Expenditure, and no proportion of any interest charges are included in the estimated cost of maintenance (a Guinea per week per head). The National Council are seeking for official recognition of the Colony by the Local Government Board, with a view to secure maintenance grants in aid for the Colonists from such public authorities as may be competent to make them. The grades of work and exercise are as follows:

1. Patients unfitted for active exercise, make mops, mats, sew, etc.
2. Walking from one to six miles a day.
3. Picking up wood, carrying baskets of mould, watering plants, attending to poultry and rabbits.
4. Using a small shovel, cutting grass edges, hoeing vegetables.
5. Digging broken ground, mowing grass, etc.
6. Trenching, mixing concrete, felling trees, work on the farm.

To the patient there is no charge, and he receives remuneration for his work at the rate of 1s. a day. It is the wish of the Association to be the means not only of restoring to health those broken down in the service of their country, but also to enable the men to make a fresh start in life by giving them an insight into various outdoor occupations and an interest in country pursuits. From the tendencies to which they are liable, such men should keep out of cities and remain on the land, either at home or in one of our Overseas Dominions. Should this experiment prove successful, it is the intention of the Y.M.C.A. to form other Colonies in order to solve the problem for those sufferers from the war who may be temporarily incapacitated by wounds or health from reverting to their normal vocations on discharge. The London Committee consists of: The Hon. Mrs. Stuart Wortley, Chairman; Dr. T. D. Acland, Hon. Medical Adviser; Lady Carson, Mrs. Stracey Clitherow, the Countess of Leitrim, Lady Rodney, Cornelia Lady Wimborne, and Mr. F. J. Chamberlain (Y.M.C.A.). The Members of the Red Triangle Committee are as follows: Cornelia Lady Wimborne, Chairman; Mrs. Stracey Clitherow, Commandant and Secretary; Mrs. Dolby, Mrs. Kentish, Miss Helen Pontifex, Mr. W. Llewellyn, Mr. T. J. Meaby, Dr. Hyla Greves, and Dr. Small. Further particulars may be obtained on application to Mr. F. J. Chamberlain, at the Y.M.C.A. Headquarters, 125, Tottenham Court Road, London, W. 1. The Colony is five miles from Poole, Wimborne, and Bournemouth Central Stations. The train service from London is from Waterloo to Bournemouth Central. The telegraphic address is "Farm Colony, Kinson." The telephone is: "Longham 11."

During these war days many public authorities, and not a few medical advisers, are in perplexity as to the selection of suitable residential centres where skilled institutional treatment for tuberculous cases may be obtained. For guidance in the choice of hospitals and sanatoria for consumptive and other tuberculous patients reference should be made to "The Tuberculosis Year-Book and Sanatoria Annual" (price 7s. 6d. net). All interested in and responsible for provisions for the care, medical supervision, and educational training of tuberculous and tuberculously disposed children, should consult "The Year-Book of Open-Air Schools and Children's Sanatoria" (price 7s. 6d. net). These indispensable reference books are published by Messrs. John Bale, Sons and Danielsson, Ltd., 83-91, Great Titchfield Street, Oxford Street, London, W. 1.

NOTICES OF BOOKS.

FARM COLONIES FOR THE TUBERCULOUS.

THE possibility of establishing Farm Colonies for tuberculous combatants and others is now receiving much consideration.¹ Professor Sims Woodhead has furnished a valuable contribution to the subject, and it should receive serious study. The Farm Colony, it is now contended, meets present requirements better and more completely than any scheme yet brought forward. The Farm Colony will of necessity be an elaborate and complex element in organized effort for dealing with tuberculosis. "A Farm Colony should be laid out on a large tract of land, the larger the better, on which may be carried out the various forms of cultivation that are feasible in this country of ours, and especially those that can be carried on profitably on small allotments, whether farms or gardens. It is obvious that if financial success alone were to be looked for it would be necessary to lay out large stretches of land to be worked with the labour of the patients, but it has to be remembered that whilst we should aim at providing the patient with suitable and congenial work—work usually in the open air, and work that may appear to the patient to be immediately remunerative, for that is of the essence of things from the moral point of view—we should always seek to provide the patient with an occupation which in later years will serve as a means of livelihood, earned under favourable conditions. Therefore, whilst ploughing and sowing and reaping and harvesting of the ordinary type, and horticulture of the usual kind, market-gardening and intensive culture as carried on abroad, especially in France and Belgium, should, when suitable—and there are few places in the British Isles where these intensive methods would not produce better results than do our ordinary methods, with some crops at any rate—be employed. It follows, therefore, that part of a farm colony should be laid down on a generous allotment plan, in order that the provision for remunerative work may be made and more varied and more useful work available for a larger number of patients than could be obtained on any ordinary large farm or garden. Afforestation might also be attempted, at first on a small scale." And the greater number of colonists, it is contended, should be housed, "the year round and in all weathers," in shelters. It is proposed that the duties of the colonists should be "to feed the cattle, look after the pigs, groom the horses, superintend the poultry and do the hundred and one things that have to be attended to in a farmer's life: the threshing of corn ;

¹ "The Farm Colony for the Tuberculous," by Lieut.-Col. G. Sims Woodhead, V.D., R.A.M.C.T. A paper read at the Eighteenth Annual General Meeting of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis (offices at 20, Hanover Square, London, W. 1), on July 16, 1917. Presided over by the Rt. Hon. the Lord Balfour of Burleigh, K.T., G.C.V.O., G.C.M.G., with discussion by Sir Arthur Griffith Boscawen, M.P., Col. Sir R. W. Philip, M.D., Mr. George Fraser, Mr. D. W. Evans, Dr. N. D. Bardswell, Dr. H. W. McConnell, Dr. H. E. Dixey, Dr. W. O. Meek, Major T. D. Acland, and Professor Sir William Osler, Bart., M.D. Pp. 46. London: Adlard and Son and West Newman, Ltd., Bartholomew Close, E.C. 1. 1917. Price 6d.

the building of stacks; the cutting of chaff and root-feeding crops; the feeding, washing, branding, and shearing of sheep; the repairs on the farm, fences and buildings; the leading, the driving, the running of the motor engine—opportunities for work almost endless." And workshops will have to be available for many classes of artisans: "Here the blacksmith could always find his niche, whilst the carpenter would be essential, the painter, the bricklayer, the plumber, the electrician, and similar skilled artisans would be in request, and occupation could always be found for the hand-spinner and the hand-loom weaver, the basket-maker, and the toy designer and artificer." Professor Sims Woodhead considers that every Farm Colony should be a microcosm in which life and its occupations are to be run on lines so advantageous that the maintenance of health and the prevention of the accumulation of infection assured. It is shown, however, that "in a farm colony provision may always be made for a certain number of hospital beds." "A temperature house" or "Fever rest-house" will be an essential requirement. Indeed, Professor Woodhead says definitely: "I would have in connection with every farm colony a fever rest-house, in which all the comforts of a hospital combined with the open-air life of a sanatorium could be obtained." References are made to the Bourn Colony in Cambridgeshire, initiated by Dr. Varrier-Jones, and the new Papworth Colony now in process of development. The possibility of conducting a Farm Colony for discharged tuberculous soldiers with the help of provisions made by the Ministry of Pensions is discussed, and apparently considered economically feasible. In the discussion following Professor Woodhead's paper, and here reported in detail, Col. and Professor Sir Robert W. Philip supplied an interesting account of the Royal Victoria Farm Colony in connection with the Edinburgh scheme. Mr. George Fraser, Chairman of the District Committee of the Middle Ward of the County of Lanarkshire, dealt with the new Hairmyres Colony. Dr. Noel D. Bardswell, late Medical Superintendent of the King Edward VII. Sanatorium at Midhurst, pointed out the difficulties and limitation of the colony. His views and experiences deserve fullest consideration. "It is most difficult for a consumptive to change his occupation without sacrifice of income. No occupation, however healthy its character, is of service unless it gives a living wage. Thus it is that the consumptive worker, often impoverished by his absence from work, almost always has to return to the occupation at which he can most readily gain a livelihood, that is, the occupation he has hitherto followed. The ideal of a colony is to settle the city-bred consumptive on the land. The question arises: Does the land offer a good prospect of a living wage to the ex-boilermaker, the ex-artisan, the ex-factory hand, etc.? When one looks critically, as I have done recently, into the business of a market-gardener, a smallholder, a fruit-grower, or a poultry-farmer, and studies the life of an agricultural labourer, one is led to the conviction that without capital, without aptitude, without real knowledge and experience and capacity for prolonged strenuous work, success is with difficulty attained by those who enjoy robust health. The consumptive suffers from the further handicap of insecure tenure of health. Consumptive labour is not normal labour: it needs to be subsidized." Dr. Bardswell, as a clinician of long experience, understands the tuberculous patient's psychology: "Many patients cannot

be persuaded of the necessity for prolonged treatment: others, again, cannot afford to remain at a colony; the demands of a wife and family, suffering from the absence of the bread-winner, are insistent. So long as the patient feels unequal to sustained work, he will make sacrifices to remain at the colony. But when he finds himself working some six hours a day without fatigue; and, it should be added, without pay—his maintenance at the colony he looks upon as no more than his legal right—he not infrequently decides that it is more to his advantage to leave for the town, when his trade offers him immediate employment at an exceptional wage." The questions of the value and of the rôle of the Farm Colony in the solution of the Tuberculosis Problem cannot be answered categorically. However ideal a Farm Colony for consumptives may appear, it must be remembered that just now we are living strenuously in a world which is far from ideal, and in which the majority of its men and women are by no means idealists. Before embarking on an advocacy of colonies all aspects of the proposal should receive the fullest investigation. We hope in our next issue to be able to arrange for a symposium on Colonies for Tuberculous Subjects.

THE TUBERCULOUS PREDISPOSITION.

How is it that so few doctors and nurses and others in constant attendance on tuberculous cases develop tuberculosis? Why do so many children and young adults of apparently good family history and perfect physique, and living under what appear to be almost ideal hygienic conditions, so frequently fall victims to tuberculous disease? And why do some infected cases win back to health under what seem to be most unfavourable conditions, while others with a limited area of involvement and placed under the best sanatorium treatment go from bad to worse? These are difficult questions, and the answers are generally incomplete and unsatisfactory. We talk of inherited and acquired proclivity, familial incidence, predisposition, vulnerability, tendency, and the like, and we enlarge on powers of resistance, immunity, and non-susceptibility, but when all is said we have to admit that our knowledge regarding these matters is exceedingly limited. Every careful study on the question of predisposition is to be welcomed. Dr. W. C. Rivers has recently published an elaborate volume of studies on Tuberculous Predisposition which should receive thorough consideration.¹ More than half the book is devoted to studies of the association of pulmonary tuberculosis with ichthyosis, squint, and nasal abnormalities. Much patient research has gone to the making of this suggestive volume. As a guide to literature on the subjects dealt with the work will be of permanent value. Much space is devoted to the record of cases which have come under the author's own observation. Dr. Rivers claims that his work leads to a conclusion which can be expressed in three words: "Back to Diathesis." His opinions and forms of expression are unusual, as may be indicated by the following quotation: "And if all are equally

¹ "Three Clinical Studies in Tuberculous Predisposition." By W. C. Rivers, M.R.C.S., D.P.H., Tuberculosis Officer, Barnsley District, West Riding, Yorks; late Resident Medical Officer, Northumberland Sanatorium; and Senior Clinical Assistant, Throat Hospital, Golden Square, London. Pp. 272. With illustrations. London: George Allen and Unwin, Ltd., Ruskin House, 40, Museum Street, W.C. 1. 1917. Price 12s. 6d. net.

predisposed to tuberculosis, how (may one a little ask) can that be squared with our results; how comes it that the tuberculous contingent shows relatively so much ichthyosis, squints relatively so frequently, has nasal insufficiency so often, and, one would add (for the present list of stigmata is probably far from exhaustive), exhibits relatively so often a slightly bifid uvula, and, perhaps, other ocular anomalies and malformations besides squint?" Dr. Rivers in his final paragraph expresses the following general conclusion: "The trend of the evidence presented in this book is to establish an endogenous factor in the disease due to pulmonary tuberculosis; to bear out the ancient theory of phthisiogeny expressed in the familiar image of the soil and the seed; and to impute unsuspected importance to the *terrain*." To criticize fully this remarkable work would require many pages of this journal, but we have indicated sufficient of its aims and claims to show that it is a highly suggestive monograph and deserving of the fullest and most discriminating consideration. The volume is well got up, and the pedigree charts and numerous illustrations add to its attractiveness and value.

MANUALS FOR MEDICAL ADVISERS AND WORKS OF REFERENCE.

The Fifth Volume of the Second Edition of the "Encyclopædia Medica"¹ has just appeared. Dr. J. W. Ballantyne, the Editor, and Messrs. W. Green and Son deserve sincere congratulations on the courage and energy they are displaying in continuing the issue of this comprehensive work under war conditions. The new volume deals with subjects from Filix Mas to Heart. No less than 200 pages are devoted to the consideration of Cardiac conditions, the Editor of this journal contributing the section dealing with the pathology of affections of the Myocardium and Endocardium. The other writers responsible for the Heart articles are Professor Graham Steell, Dr. Alex. Morison, Dr. John Thomson, Dr. G. Douglas Mathewson, and Mr. James M. Graham. Among the other articles of special interest reference may be made to the following: "First Aid," by Dr. H. L. Watson Wemyss; "Food," by Professor E. W. Hope; "Glycosuria," by Dr. R. T. Williamson; and "Hay Fever," by Dr. Greville MacDonald. A good description of Hæmoptysis is supplied by Dr. R. Murray Leslie. The whole volume is admirably got up.

Now when medical practitioners and those responsible for sanatoria and like institutions have to face many difficulties in providing means for locomotion, the practical suggestions in "How to Drive a Motor-Car" will be appreciated. Reference should also be made to the helpful "Cycling Manual." These serviceable handbooks are full of valuable suggestions which will help in the solving of present-day perplexities.²

¹ "Encyclopædia Medica." Second Edition, under the general Editorship of J. W. Ballantyne, M.D., C.M., F.R.C.P.E. Vol. V.: Filix Mas to Heart. Pp. viii + 766. Edinburgh and London: W. Green and Son, Ltd. 1917. Price 20s. net.

² "How to Drive a Motor Car: A Key to the Subtleties of Motoring." Written and illustrated by the staff of *The Motor*. Fifth edition, pp. 140, with numerous figures. Price 1s. 6d. net; "Cycling Manual: All about Cycles and Cycling in Simple Language." Compiled and illustrated by the staff of *Cycling*. Pp. 94. London: Temple Press, Ltd., 7-15, Rosebery Avenue, E.C. 1, and E. J. Larby, Ltd., 30, Paternoster Row, E.C. 4.

PREPARATIONS AND APPLIANCES.

THE ETON OPEN-AIR SHELTER.

WAR experience with the admirable open-air wards for soldiers at Cambridge and Leicester and elsewhere has abundantly confirmed the views of many tuberculosis experts that in order to secure effective hygienic management of cases requiring open-air treatment extravagant outlay on elaborate buildings is quite unnecessary. At a recent visit to the Borough Hospital at Leicester, through the courtesy of the Medical Officer of Health, Dr. Killick Millard, we were enabled to inspect in actual use the new form of THE ETON SHELTER.¹ The

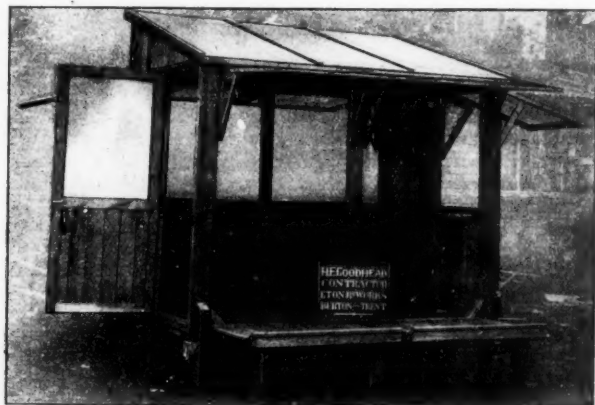


THE ETON SHELTER: CLOSED.

chief features of this ingenious and serviceable shelter are indicated in the accompanying illustrations. The shelter is constructed on 2 x 2 inch framing, mortised and tenoned, and covered with $\frac{3}{4}$ -inch best well-seasoned red deal match-boards. The size is 8 feet x 5 feet 9 inches x 6 feet to 7 feet 6 inches high. The shutters are of 1 $\frac{1}{4}$ -inch framing, filled in with stout canvas, which keeps out driving rain, and allows air to filter through. The roof is securely bolted on, and constructed

¹ The Eton Shelter is manufactured by Mr. H. E. Goodhead, specialist in portable buildings, Eton Road Works, Burton-on-Trent. The price may be obtained on application, with a special quotation for quantities.

of $\frac{3}{4}$ -inch match-boards, covered with good compressed felt. The shelter is raised from the ground by 3×4 inch runners and feet. The shelter is coated inside and out with a special wood preservative. There are two louvre ventilators, situated above the shutters on the 7 feet 6 inches side. The whole front is made to open, thus increasing the floor space by 50 per cent. The falling front is carried on two sets of supports which telescope under the frame when the shelter is closed. This arrangement allows of the bed being brought into the sunlight. The shutters, when open, are placed at an angle, which, whilst allowing



THE ETON SHELTER: OPEN.

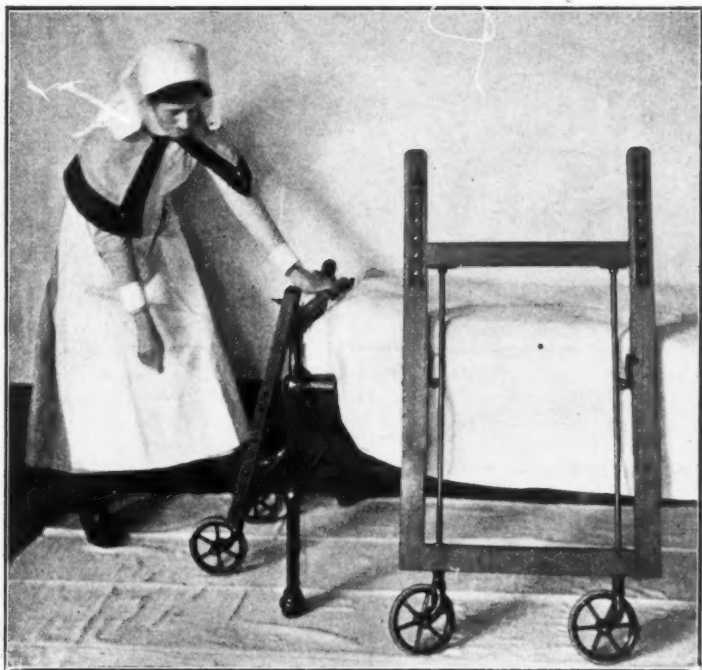
sufficient protection from the weather, enables the shelter to be flooded with sunlight. The whole shelter is soundly constructed, neat in appearance, light, and, being made in sections, is portable and easy to erect anywhere.

PORTABLE BEDSTEADS.

The form of bedstead used in the treatment of tuberculous cases is a matter of much importance. Where patients are undergoing open-air treatment on a terrace or veranda in front of a ward, room, or shelter it is most desirable that in case of inclement weather the bedstead should be so arranged on wheels that it can be readily moved from the open to a place under cover. Certain special forms of bedstead have been made to meet this need. But in war days, at all events, there is difficulty in getting new bedsteads for sanatoria. We generally have to be content to use what we have got. Many will therefore welcome an ingenious contrivance which has been introduced as the TOWNSEND LOCK BED-LIFT AND TRANSPORTER.¹ The

¹ Full particulars regarding the Townsend Lock Bed-Lift and Transporter can be obtained from the inventor, Mr. H. Townsend, the Hon. Secretary of the Inquiry Bureau, 39, Broad Street, Bristol. This Bureau is maintained by a voluntary organization for the assistance and entertainment of wounded soldiers, officially

chief features of this clever contrivance are indicated in the accompanying illustrations. The apparatus consists of two square frames as illustrated (one for head, one for foot of bed), running on swivel rubber-tired wheels. These frames are hooked to the top bar of the bed frame, and with a push at the bottom of the frame the bed is levered up, and the frame clamped in position with hooks sliding on its face to



THE "TOWNSEND LOCK" BED-LIFT AND TRANSPORTER.

The illustration shows a nurse attaching the appliance to the foot end of a bed. A push on the lift and transporter with the foot raises the bed, and the frame is then fixed by hooks to the straining bar of the bed frame.

the straining bar of the bed. This arrangement allows the bed to run freely in any direction, and to be readily lowered to the ground when required. No lifting is called for, the leverage of the frame produced by a push being enough. Hospitals with wards having easy access to the open air will find this apparatus allows patients being moved without carrying or lifting into the open air. It only takes about fifteen seconds to place the bed and patient on free and smooth running wheels,

acting for the 2nd Southern General Hospital, Bristol, and the Beaufort War Hospital, Bristol, and their Auxiliary and Subsidiary Hospitals. The apparatus above described costs £5, and any profits will be devoted to the funds of the Inquiry Bureau.

and the bed can then be moved anywhere with perfect freedom. The apparatus is adjustable, and can be fitted to almost any ordinary hospital bed.



THE "TOWNSEND LOCK" BED-LIFT AND TRANSPORTER.

The illustration indicates the apparatus fixed to the head and foot of a bed. The bed with its patient can be easily moved from ward to ward, or from the ward to the open air. The appliance enables a large ward filled with bed-fast cases to be evacuated in a very short time.

NOSE AND THROAT SPRAYS AND DOUCHES.

In the treatment of consumptives and other tuberculous subjects it is of much importance to investigate the condition of the nose and throat and treat morbid lesions connected with the respiratory passages. In many patients chronic inflammatory or other derangements of the mucous membrane are found to exist. Marked benefit can often be secured by simple measures and the regular use of antiseptic, deodorant, germicidal, or simple cleansing preparations. Under the general desig-

nation of "Aseptoids," Messrs. Oppenheimer, Son and Co., Ltd., have introduced a valuable series of moulded cubes which readily dissolve in water, so forming convenient and reliable solutions.¹ The same firm provide two useful appliances which only need to be known to be appreciated. The "ASEPTOID" SPRAY is illustrated in the accompanying figure. This appliance gives a powerful continuous spray, and



THE "ASEPTOID" SPRAY.

The illustration also shows the extra curved nozzle which is used to replace the ordinary bulbous tip for post-nasal use, etc.

is suitable for use in all conditions when it is desired to irrigate the nose, throat, or ear. It is provided with a conical nozzle for the nose and ear, and this may be replaced by an extra curved nozzle which can be adjusted to point up or down as required, and which greatly facilitates the application of the spray to the posterior nares, pharynx, and larynx. The spray is simple in construction, not likely to get out of order, and is thoroughly efficient in action.

The "ASEPTOID" GLASS DOUCHE is a glass container of special design which can be filled with the liquid medicament through a central tube. If this be covered firmly with the finger no liquid escapes, and the bulbous end can safely be inserted in the nostril. On lifting the finger the liquid flows, and it can be stopped instantly by replacing the finger. This douche is admirable for flushing the nasal cavities with medicated liquids.



THE "ASEPTOID" NASAL DOUCHE.

¹ Full particulars regarding the "Aseptoid" products can be obtained on application to Messrs. Oppenheimer, Son and Co., Ltd., 179, Queen Victoria Street, London, E.C. 4. The "Aseptoid" Spray is supplied for 4s. and the "Aseptoid" Glass Douche for 1s. 3d.

HOT-WATER BOTTLES.

If open-air management is to be conducted in comfort and with the maximum of benefit arrangements must be available for the maintenance of the warmth of the patient. Various contrivances are available, but the simplest and most effective, economic, and pleasant usually takes the form of a Hot-Water Bottle. And of all varieties of Hot-Water Bottles the kind made of rubber is undoubtedly the most comfortable and generally acceptable. And of those available the "Eclipse" Hot-Water Bottle occupies a foremost position. It is made by the well-known firm of Messrs. J. G. Ingram and Sons, Ltd.¹

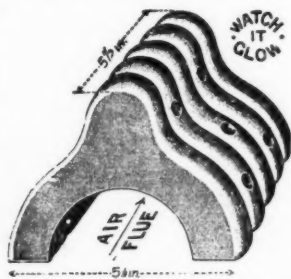


THE "ECLIPSE"
RUBBER HOT-WATER
BOTTLE.

The "Eclipse" is thoroughly reliable. It is made of the best quality of rubber, and is fitted with a patent rubber-covered screw stopper which effectively overcomes all risk of leakage. The bottle can be easily filled and can be used in any climate. Not only do patients in sanatoria and similar institutions require a reliable Hot-Water Bottle, but in the domiciliary treatment of consumptives they are indispensable adjuncts. It may be permissible here to add a reminder regarding the comfort of nurses engaged in open-air work; certainly every such nurse should be provided with an "Eclipse."

A NEW INCANDESCENT FIRE-CONE.

Under war conditions the problem of providing effective and economic heating for the wards of hospitals and the sick-rooms of private patients is a very real one. Any appliances which help to meet existing difficulties are to be welcomed. A novel form of patent Incandescent Fire-Cone has been introduced by Messrs. G. B. Chance and Co., which promises to be of practical service.² The Cone is made from a special mixture of Stourbridge fireclay, readily becomes incandescent, and absorbs, retains, and radiates heat without being itself consumed. It is also very durable. The Cone is placed in the centre of the fire-grate and covered with coals. It is an economic contrivance which should be appreciated in these days of heavy coal bills.



THE PATENT INCANDESCENT
FIRE-CONE.

¹ A complete price list regarding the various sizes and shapes of the "Eclipse" Hot-Water Bottles can be obtained through any Chemist or at the Stores.

² The Patent Incandescent Fire-Cone is manufactured by Messrs. G. B. Chance and Co., Wollaston, Stourbridge. Price direct from the makers, carriage paid, 4s. each. The appliance can also be seen and obtained at Messrs. Blake, 159, Victoria Street, London, S.W. 1.

THE DESTRUCTION OF DUST.

Dust is commonly a carrier of disease. Dried sputum in the form of dust is undoubtedly a fruitful source of tuberculous infection. Wherever consumptives and other "open" cases of tuberculosis are to be found the most scrupulous care should be taken to prevent the accumulation and scattering of dust. All forms of dust should be collected and destroyed systematically. The greatest care is essential in hospitals, sanatoria, and other places where tuberculous patients are dealt with, to deal effectively with dust of all kinds. Dust, even when free from infective agents, may act as a mechanical irritant, and cases predisposed to tuberculosis should carefully avoid exposure to dust. The collection of dust must be counted as one of the most necessary of measures in the prophylaxis of tuberculosis. There is now no justification for permitting servants to be exposed to the dangers of the old-fashioned methods of dusting and dust collection. One of the most hygienic means whereby dusting can be safely and satisfactorily carried out is by means of the "KOMO" HANDY MOP.¹ The new standard model is a perfect appliance. It allows of the dusting fabric being readily detached and replaced by clean or spare dusting fabrics, which can be used damp, dry, or specially treated with disinfectants or other preparations. The Mop is now provided with a hinged handle which allows for adjustment to be made, so that any angle can be dealt with and the most difficult and inaccessible corners reached. For special needs a small "Midget" form of the "Komo" is available.

IODINE PREPARATIONS.

IODINE and Iodine preparations have found much favour during recent years. In the treatment of various forms of tuberculosis Iodine compounds have been proved to be of real service. There are enthusiasts for the so-called nascent Iodine treatment. Iodine undoubtedly acts as a powerful alterative. It would seem to exercise a distinct influence on the blood elements, and promotes solvent action of the body fluids. Iodine increases secretory activity and stimulates constructive metabolism. In many cases it would seem to help in the re-establishment of the normal activity of tissues, and it appears to possess germicidal properties. Under the name of IODOSTARIN "ROCHE" there has been introduced an organic stable compound of Iodine which is said to contain 47.5 per cent. of Iodine in an active form.² It can be administered in convenient tablet form, and does not easily produce Iodism. Iodostarin is readily absorbed, and has been shown to be of value in the treatment of various chronic pulmonary affections, syphilitic lesions, and tuberculosis, particularly of the glands. It must be remembered that many sufferers from tuberculosis are old syphilitic subjects, and for these it seems likely that Iodostarin will be very useful.

¹ The "Komo" Dusting Mops are manufactured by the "Matchless" Metal Polish Company, Ltd., Binns Road, Old Swan, Liverpool, from whom all particulars and price list can be obtained on application.

² Iodostarin "Roche" is manufactured by the Hoffmann la Roche Chemical Works, Ltd., 7 and 8, Idol Lane, E.C. 3, and specimens and particulars may be obtained on application.

IODOGÉNOL is another new Iodine preparation in an organic form.¹ It is claimed to have proved of much service in the treatment of tuberculous conditions in French hospitals. It is palatable and readily taken by persons to whom the usual forms of Iodine are intolerable.

LIPIODINE is described as a new organic combination (Ethylic ester of Diiodobrassicic acid) containing 41 per cent. of available Iodine.² It consists of tasteless, colourless, needle-shaped crystals, insoluble in water, but easily soluble in such oils as cod-liver oil. Lipiodine is said to pass through the stomach without dissociation, and to be slowly absorbed in the intestine without liberating free Iodine. The dangers of Iodism would seem to be excluded. Children apparently bear it well. It is claimed to be of much service in scrofulous conditions, and is apparently worthy of thorough trial in the various forms of tuberculosis.

"RIODINE" $[(C_{18}H_{33}O_3IH)_3C_3H_5]$ is another organic derivative of Iodine which is claimed to be a definite and stable compound suitable for therapeutic use.³ It is said to be valuable in forms of glandular tuberculosis and scrofulous conditions in childhood, as well as in chronic non-tuberculous pulmonary affections.

"IODEX" and "Liquid Iodex" are Iodine preparations introduced by Messrs. Menley and James, Ltd., which have found much favour.⁴ "Iodex" is an ointment preparation of 5 per cent. free Iodine in a neutral base, and devoid of alkaline iodides. It is supplanting most of the older Iodine preparations for local external use. Although a coal-black unguent, it does not stain, blister, or crack the skin. It is antiseptic, non-irritating, and is easily absorbed. It is a favourite local application for enlarged and tuberculous glands, and some of the cutaneous disorders often met with in tuberculous subjects. "Liquid Iodex" is a colloidal preparation of $2\frac{1}{2}$ per cent. Iodine. Its action is similar to that of "Iodex," but its fluid form allows for a more extended therapeutic action. It is estimated to be of similar strength to Tincture of Iodine. It can be used as a spray or an injection, or in any form of topical application. As will be readily seen, it has a wide range of usefulness.

COD LIVER OIL AND MALT PREPARATIONS.

During these dark, wet, cold, windy, and generally trying months of winter, when there is no chance for a delicate tuberculous or tuberculously disposed person to seek sanctuary in the sunny South or renew

¹ Iodogénol (Pépin), together with literature relating to the preparation, can be obtained from the Anglo-French Drug Company, Ltd., Gamage Building, Holborn, London, E.C. 1.

² Lipiodine is supplied by the Saccharin Corporation, Ltd., 36 and 37, Queen Street, London, E.C. 4. This firm also supplies "Trivalin," the substitute for morphia, "Dial-Ciba," the non-cumulative hypnotic which is said to be free from objectionable after-effects, and other preparations likely to be of service in sanatorium practice. Full particulars will be sent to any medical practitioner on application.

³ "Riodine" is manufactured by the Pharmacie Astier, 72, Avenue Kleber, Paris, and specimens and particulars may be obtained at the British Agents, Messrs. Wilcox, Jozeau and Co., 49, Haymarket, London, S.W. 1.

⁴ "Iodex" and "Liquid Iodex" are manufactured by Messrs. Menley and James, Ltd., Menley Road, Farringdon Road, London, E.C. 1, who will supply specimens and literature on application.

strength in Alpine stations, and when, moreover, considerable difficulties are experienced in many parts in getting sufficient quantities of pure milk and reliable fats and sugars, it is not easy to secure acceptable nutrients for our patients. Probably the most effective preparations are the old favourites cod liver oil and the various emulsions and other combinations of cod liver oil and malt. For children and adolescents these long-approved preparations act as most valuable foods, and particularly in tuberculous conditions their service is exceptionally valuable. We would strongly recommend the "Allenbury's Cod Liver Oil." It is an exceptionally pure and palatable oil, easily assimilated, and rarely giving rise to nausea or troublesome eructations. Children soon learn to drink it with keen enjoyment. It is prepared at Messrs. Allen and Hanbury's own factories at Lofoten and Söndmör, in Norway, and unpleasant and harmful products are eliminated in the course of its refinement and preparation for use. In some cases, however, cod liver oil is preferred in combination. Here "BYNOL," which consists of the "Allenbury's" Cod Liver Oil in intimate association with reliable Malt Extract, may be given. Another popular preparation is "BYNIN" EMULSION, which is a combination of the "Allenbury's" Cod Liver Oil with "Bynin"—a pure form of active liquid malt, together with the hypophosphites of lime and soda.¹

A very valuable series of "MALTINE" preparations is supplied by the Maltine Manufacturing Company. "Maltine" Plain is often of service in dealing with wasted and debilitated subjects, and especially in cases where tuberculosis is threatening or has developed. It is prepared from malted barley, wheat, and oats, and contains 75 per cent. of diffusible cereal proteids, carbohydrates, and organic phosphates. "Maltine" with hypophosphites has for long been a special favourite in the management of tuberculous cases. For children and adolescents, as well as for adults, the combination of "Maltine" with cod liver oil often proves exceptionally effective. It is a standard product, with 30 per cent. of pure Norwegian cod liver oil, semi-fluid in form, and easily manipulated. The oil is in perfect emulsion, and does not separate out. The preparation is an effective starch digestant, and is particularly palatable.²

REQUISITES FOR THE SANATORIUM AND ITS PATIENTS.

"ROBOLEINE," manufactured by Messrs. Oppenheimer, Son and Co., Ltd., is a preparation which will be found of much value in improving the nutrition of tuberculous patients, and particularly children suffering from tuberculosis or other debilitating conditions.³ "Roboleine" is a highly palatable food tonic. It contains red bone marrow-juice, from the rib-bones of calves, cream of malt, and the

¹ Full particulars and samples of the "Allenbury's" Cod Liver Oil and Malt Preparations may be obtained on application being made to Messrs. Allen and Hanburys, Ltd., 37, Lombard Street, E.C. 3.

² Particulars regarding the "Maltine" preparations may be obtained on application being made to the Maltine Manufacturing Company, Ltd., 183, Acton Vale, W.

³ A specimen of "Roboleine," with particulars regarding its composition and administration, will be sent to any medical practitioner on application being made to the manufacturers, Messrs. Oppenheimer, Son and Co., Ltd., 179, Queen Victoria Street, London, E.C. 4.

hypophosphites of lime, soda, and potash. For regular use during winter months it is to be strongly advocated. It is a preparation very suited for administration to children attending open-air schools or who are constitutionally delicate, and it promises to be of particular service in preventing the development of chilblains in malnourished subjects.

"KEROCAIN" is a British-made form of "Novocain." It is manufactured in the laboratories of Thomas Kerfoot and Co.¹ This agent is invaluable in the production of local anæsthesia and the establishment of Anoci-association. It is available in tablet form in various strengths made up with or without adrenalin or in standardized sterile solutions. "Kerocain" is likely to be of service in sanatorium practice, for dental purposes, and procedures requiring local anæsthesia.

"AMBRINE" has found much favour as an effective local application for the treatment of burns.² It has been used with great advantage during the war in the Navy. It is claimed that "Ambrine" is also of service in the treatment of frost-bites and chilblains, and for the management of some cases of varicose ulceration, chronic rheumatism, neuritis, and the like, where aseptic, soothing, and warm local applications are desired. Chilblains are a very serious complication in the conduct of open-air methods, and it certainly seems desirable that "Ambrine" should be given a fair trial in the treatment of this troublesome condition, which is so prevalent in sanatoria and elsewhere among tuberculous patients.

An elegant and convenient form of improved flexible gelatine capsules containing Iron and Arsenic, with Extract of *Nux Vomica* and Phenolphthalein, suitable for administration to anæmic and other debilitated subjects, has been introduced by the firm of Robert Ferber, Ltd.³ The same house is supplying, under the designation of "Blenosan Capsules," a reliable combination of the essential resins of the root of *Kava-Kava* and East Indian Oil of Santal. These excellent pharmaceutical preparations are likely to be of much service in private practice, and may be used with advantage in certain cases in hospital and sanatoria.

Under the designation of "SOTOL," the Western Dental Manufacturing Company, Ltd., have introduced a form of effervescent alkaline tablet containing antiseptic deodorants and aromatics which enables a fragrant and pleasing solution to be prepared with the minimum of trouble.⁴ This makes an attractive mouth wash, gargle, douche, or spray for the nose and throat, and indeed can be employed anywhere where an antiseptic and cleansing solution is required. "Sotol" should be very useful in sanatorium and hospital work, as well as in private practice.

¹ Messrs. Thomas Kerfoot and Co., Bardsley Vale, Bardsley, Lincs, have published a booklet on "The Theory and Practice of Local Anæsthesia," and a copy, together with all necessary particulars regarding "Kerocain," will be sent to any medical practitioner on application.

² Particulars regarding "Ambrine" can be obtained on application being made to the Anglo-French Drug Company, Gamage Building, Holborn, London, E.C. 1.

³ Full particulars regarding Iron Mediation by the use of the Ferber Capsules may be obtained from Messrs. Robert Ferber, Ltd., 98-104, Oakley Street, Westminster Bridge Road, London, S.E. 1.

⁴ Full particulars and specimens of "Sotol" can be obtained on application to the Western Dental Manufacturing Company, Ltd., 74, Wigmore Street, London, W. 1.

"SPHAGNOL" and its preparations in ointment form and incorporated in soaps provides very satisfactory agents for the treatment of cutaneous disorders, chilblains, insect bites, and as first-aid dressings, soothing and cleansing applications, and for the maintenance of hygienic conditions of the body generally.¹ "Sphagnol" toilet preparations are particularly suited to the needs of sanatorium patients and cases undergoing open-air treatment.

"STORAXOL" is a combination of storax, resorcin, menthol, camphor, carbolic acid, and precipitated sulphur, with an emollient ointment base.² It is put up in convenient, portable, collapsible tubes. As a local application in chilblains, pruritus, various parasitic skin disorders, and other cutaneous lesions sometimes met with in tuberculous subjects, "Storaxol" will be found to be invaluable. It is prepared by Messrs. Parke, Davis and Co. The same firm is now providing, under the name of "MOLEVAC," an excellent and palatable combination of Liquid Pertrolatune of high viscosity with a reliable Malt Extract and Cascaria Evacuant. This elegant preparation will be found of value in sanatorium practice.

"CHLOROS" has for long been used in many hospitals and other institutions as an inexpensive and reliable disinfectant.³ It is particularly suited to the needs of schools, infirmaries, and public places. For the cleansing and deodorizing of drains, urinals, water-closets, market-places, farm habitations, and the like, it is of greatest service. It has been very effective in the cleansing of swimming-baths. For use in sanatoria it offers many advantages. It is excellent as an agent to disinfect tuberculous sputum and for the cleansing of places used by tuberculous patients.

"LYSOL" has long been popular in sanatoria and hospitals for tuberculous patients. A very reliable brand of Lysol is now being provided by the firm of Lysol, Ltd.⁴ The "L" Lysol Brand is an admirable disinfectant and deodorizer. It is an excellent preparation for using with sputum flasks, and for the sterilization of surgical instruments and other appliances. The Lysol Soaps are available in several varieties suitable for surgical use, cleansing of patients, employment by staffs, as well as for individual service and regular use for toilet and nursery purposes.

"ACROSYL" is a useful disinfectant and deodorant which will be found of service in dealing with tuberculous sputum, and for the usual purposes for which a reliable germicide is necessary in sanatorium practice.⁵

¹ "Sphagnol" preparations are manufactured by Peat Products (Sphagnol) Ltd., and specimens and particulars may be obtained on application to the Central Offices, 18 and 19, Queenhithe, Upper Thames Street, London, E.C. 4.

² Particulars regarding "Storaxol" and "Molevac" may be obtained on application being made to Messrs. Parke, Davis and Co., 50-54, Beak Street, Regent Street, London, W. 1.

³ "Chloros" is manufactured by the United Alkali Company, Ltd., at Gaskell Deacon Works, Widnes, and full particulars, with prices, may be obtained on application to the Central Offices, 30, James Street, Liverpool.

⁴ Specimens and full particulars of Lysol and Lysol Soaps and other preparations may be obtained on application to Lysol, Ltd., Crayford Mills, Warton Road, Stratford, London, E. 15.

⁵ "Acrosyl" is manufactured by Messrs. R. Graesser, Ltd., Chemical Works, Ruabon, North Wales, from whom specimens and particulars can be obtained.

Under the name of "Nujol" a particular pure and reliable preparation of liquid paraffin or petroleum oil has been introduced.¹ This will be found of much service in dealing with constipation and other intestinal disorders commonly met with in consumptives and other tuberculous cases. Whatever may be its precise pharmacological action, there can be no doubt as to its beneficial action on the mucous membrane of the intestinal tract. "Nujol" is a refined, palatable, and reliable form of petroleum oil, and may be prescribed with no risk of upsetting the patient. It is a preparation which only needs to be used to be approved.

In the relief of many morbid conditions, both acute and chronic, involving the pharynx and larynx, and particularly in the involvement commonly met with in tuberculous subjects, some form of local medication is often called for. One of the most convenient ways in which relief of troublesome symptoms may be secured is by the use of reliable pastilles or lozenges, or similar preparations. We would particularly commend the excellent series of MEDICATED PASTILLES manufactured by Messrs. Allen and Hanburys, Ltd.²

"Chloramine-T" is now being extensively used in medicine and surgery. It is available in various forms. It is claimed to be the ideal antiseptic. As a reliable antiseptic and disinfectant, non-toxic, non-corrosive, stable, portable, and convenient for use, it seems likely to have a great future. Messrs. Boots and Company, Ltd., have recently introduced an elegant pharmaceutical preparation, "CHLORAMINE-T CREAM," which promises to be of much value as a local application for cases undergoing open-air treatment.³

Up to recent times our pathological, bacteriological, and other laboratories were mainly dependent for their scientific equipment on materials made in Germany and Austria. Under the stress and strain of war, British manufacturers are now doing their best to repair some of the shortcomings and follies of bygone days. We have just received specimens of excellent MICROSCOPIC SLIDES and COVER GLASSES from the well-known firm of glass specialists, Messrs. W. Wellsbury and Co.⁴ These will be found of excellent quality, and are available at reasonable rates.

The Vinolia sanitary, hygienic and toilet preparations will be found of special service to sanatorium patients.⁵ We would particularly commend the Royal Vinolia Talcum Powder as a reliable absorbent and antiseptic application. Vinolia Cream and the Vinolia Soaps are valuable preparations for cases undergoing open-air treatment.

¹ "Nujol" is supplied by the Anglo-American Oil Company, Ltd., 36, Queen Anne's Gate, Westminster, S.W., and specimens and particulars will be supplied to medical practitioners on application.

² A booklet, "Advances in Treatment: Throat Therapy," gives in convenient tabular form particulars of the pastilles now available. A copy will be sent on application to Messrs. Allen and Hanburys, Ltd., 37, Lombard Street, E.C. 3, and 7, Vere Street, Cavendish Square, W. 1.

³ Full particulars regarding all "Chloramine-T" preparations may be obtained on application being made to the manufacturers, The Boots Pure Drug Company, Ltd., The Laboratories, Nottingham.

⁴ Particulars and quotations for microscopical and other scientific glass preparations may be obtained on application to Messrs. W. Wellsbury and Co., The Platts, Amblecote, Stourbridge.

⁵ Full particulars regarding the Vinolia Preparations may be obtained on application to the Vinolia Company, Ltd., London.

THE OUTLOOK.

THE FUTURE OF THE TUBERCULOUS MOVEMENT.

THE BRITISH JOURNAL OF TUBERCULOSIS commences its twelfth volume in days of national crisis. Through the bygone years we have persistently laboured to serve all agencies and measures making for the prevention and arrest of tuberculosis, and to aid in the evolution along sound lines of the so-called Tuberculosis Movement. We have at all times sought to secure the co-ordination of all serviceable forms of anti-tuberculosis work and to support the loyal and effective co-operation of all classes of workers. Now, with the insistent demands for war services, tuberculosis work is being held up, and tuberculosis workers have been scattered. And yet never was there greater need for the maintenance of forces capable of resisting the spread of tuberculosis. Under the stress and strain of war and its conditions and concomitants many are falling victims to tuberculous disease, and these must be given scientifically directed and rational treatment. There is urgent need for the organization of a Tuberculosis Department in an effective Ministry of Health. At present tuberculosis as a medical malady, a social ill, a war consequence, an economic problem, is being dealt with in some measure by a number of different Government departments. There is lack of a co-ordinating brain centre, and until such is developed overlapping, incompleteness, ineffectiveness, and waste will inevitably prevail. In the chain of our Tuberculosis Service many links have been forged, but they are of varying size, shape, and strength, and there is great need for correlation and adaptation. As matters stand, it is foolish to condemn one element and approve another. The strength of the chain must depend on the reliability of each link. In our tuberculosis work we have many things to learn. There is much that is still obscure in regard to the pathology of tuberculosis. Our clinical methods of investigation are still far from perfect. The practical instruction given to students in schools of medicine is meagre, and opportunities for adequate post-graduate study are lacking. Even among tuberculosis officers there are comparatively few who can be considered clinical experts. Facilities for research are scanty. Hospitals and sanatoria for tuberculous cases are inadequately staffed. The work of tuberculosis dispensaries has to be conducted under great difficulties, and domiciliary treatment is little more than a convenient designation. And even in regard to the organization and administration of tuberculosis work a policy of go-as-you-please seems to govern thought and action. We still wait for effective definitions, reasonable classifications, and some helpful measure of conformity in the issue of animal reports and statistical returns by local authorities. In regard to tuberculosis work, many seem content to adopt *laissez faire* precepts and practices, and rest content

with good intentions that something shall be attempted after the war. But the need for action is here and now. Tuberculosis is spreading among all classes of the community and in all parts of the country. Large numbers of combatants are returning hopelessly smitten. Among munition and other workers tuberculosis is claiming many victims. Large numbers of children are being infected. To delay till after the war will be to postpone action until it is too late. A comprehensive and complete policy should be elaborated at once, and the development of a national scheme the best minds available should be commandeered. If the tuberculosis problem under war and after-war conditions is to be thoroughly investigated and reliable measures adopted, a representative and authoritative committee of inquiry should be appointed at the earliest possible moment.

TUBERCULOSIS AND THE LOCAL GOVERNMENT BOARD.

The Local Government Board is the State Department chiefly responsible for tuberculosis work in England and Wales. The last report of Sir Arthur Newsholme, Chief Medical Officer to the Local Government Board, provides information regarding the organization and administration of our national medical service in respect of tuberculosis. A table is presented which shows that comparing the experience of 1915, the last complete year before the war, with subsequent years, the deaths from pulmonary tuberculosis increased by 1,582 in the year 1914, by 4,621 in 1915, and by 4,490 in 1916. The increase was not confined to one sex. Comparing recent years with 1913, male deaths from pulmonary tuberculosis increased by 778 and female deaths by 804 in the first year of war; male deaths by 2,596, and female deaths by 2,025 in the second year of war; and male deaths by 2,204 and female deaths by 2,286 in the third year of war. The increased mortality from pulmonary tuberculosis having been shared by both sexes, it must be inferred that conditions have arisen which adversely affect the health of persons of both sexes. It should be noted that the increased mortality from pulmonary tuberculosis was associated in 1915 and 1916 with still more excessive mortality from influenza. The deaths from pulmonary tuberculosis in both 1915 and 1916 were 12 per cent. in excess of those in 1913. "Men in the army, and men and women in industrial employment, notwithstanding the efforts to minimize these results, have been exposed to conditions leading to the spread of tuberculosis and to the calling into activity of latent disease. A large number of unrecognized or partially recovered consumptives have entered the army or have been employed at high wages in munition and other works. In many instances there has been overwork and excessive exposure to irritating dust. Commonly also, owing to great migrations of military and civil population, there has been overcrowding under conditions unfavourable to health. These are outstanding facts. They will need to be further considered in the light of the current year's experience. The experience in this country appears to coincide with that of the Continental countries engaged in the present war. In all of them, so far as can be gathered from official information, tuberculosis appears to have been more rife and more fatal

than prior to the war. It is proper to state that this unfavourable record would almost certainly have been worse but for the organized efforts to improve housing conditions in areas the population of which has been swollen by war work, and especially for the efforts made by the Government to secure improved conditions of work for munition workers, as well as to cope with the special housing difficulties which have arisen. I may draw attention, furthermore, to the fact that notwithstanding the increase in the population of England and Wales in the interval, the deaths from tuberculosis were fewer than in so recent a year as 1902." The steps which have been taken during recent years towards direct administrative control of tuberculosis can be thus summarized: (1) Compulsory notification of Poor Law Cases of pulmonary tuberculosis from January 1, 1909; (2) compulsory notification of hospital cases of pulmonary tuberculosis from May 1, 1911; (3) compulsory notification of cases of pulmonary tuberculosis in the general population from January 1, 1912; (4) compulsory notification of cases of all forms of tuberculosis in the general population from February 1, 1913; (5) the coming into operation of the sanatorium benefit of the National Insurance Act, 1911, in July, 1912; (6) provision by the Finance Act, 1911, of £1,116,000 in England and Wales for erection of sanatoria. It may here be noted that the Report of the last Royal Commission on Tuberculosis was issued in 1911; and the Department Committee on Tuberculosis reported on April 3, 1912. County Councils and County Borough Councils were invited to formulate and carry into effect schemes for the provision of institutional treatment at dispensaries and in residential institutions. In 1911, local authorities, other than Poor-Law authorities, had about 1,300 beds available for the institutional treatment of tuberculosis, while there were 4,200 beds in private sanatoria and voluntary institutions. In June, 1916, the number of beds provided by public health authorities had increased to 6,072, and voluntary beds to 5,821; a total of 11,893, as compared with 5,500 in 1911. In 1911 there were only about 25 to 30 tuberculosis dispensaries; in 1917 this number had increased to 371. War, however, has prevented the development of tuberculosis schemes, and has seriously crippled and reduced the efficiency of existing work. "It may be stated generally that: (1) In only a relatively small number of county areas have fairly completed arrangements for the institutional treatment of tuberculosis come into operation. In most county boroughs deficiency of provision is less marked. (2) Even when fairly complete arrangements have been made, these have usually been in full operation for a short period only, and have been crippled more or less during 1915 and 1916. A few county borough councils, who had organized sanatorium treatment prior to the passing of the National Insurance Act form exceptions to these statements." Sir Arthur Newsholme effectively presents the difficulties and defects of existing arrangements under headings relating to the patient, the private practitioner, tuberculosis officers, sanatoria, and the care of chronic and advanced cases of pulmonary tuberculosis. Only brief reference can be made here to some of the points raised: "Education of the public as to the need to seek for advice for protracted coughs and colds, or for other symptoms suggestive of the possibility of tuberculosis is badly needed; and until the working classes have realized the importance of the early diagnosis and

treatment of catarrhs and tuberculosis, and the removal of the conditions (bad housing, overcrowding, dusty indoor occupations, etc.) which favour these, the arrangements for co-ordinated measures for the treatment of tuberculosis can have only partial success." "Many consumptives have felt impelled to take their part in the national work of the war. A large number of recovered or partially recovered consumptives have been fighting as soldiers. Although not a few of these have been able to withstand the strain of active warfare, the majority unfortunately have broken down, and their lives have been curtailed by the great adventure. In many other instances unrecognized and latent tuberculosis has been brought into activity by the strain of a soldier's life, and the records already show that the war will be responsible for material national increase in tuberculosis, with a consequent increase in the death-rate from this disease. The dearth of workers and the associated high wages have led to the employment of a large number of semi-invalids in industrial life. The temptation of the high wages has in many instances led both men and women to refuse sanatorium treatment or other systematic treatment." Evidence is presented which shows that notification is being imperfectly carried out: "At present, cases of tuberculosis which have been under medical care sometimes are not notified until after the death of the patient; other notifications may be received by the medical officer of health within a few weeks or months of death, and the patient may have been ill with symptoms which point to tuberculosis for a year or two before his case is notified." Tuberculosis officers are comparatively new to the work: "few of these officers had been appointed in 1912, but in June, 1915, the number had increased to 238, most of them recently appointed." It is quite openly admitted that "there was an insufficient number of doctors for the new service with adequate experience of the diagnosis and treatment of tuberculosis on modern lines; and some of the less experienced did not secure the confidence and co-operation of private practitioners." With regard to sanatoria, it is shown that "a high proportion of the patients in these beds have been of what is known as the hospital type." Cases of pulmonary tuberculosis requiring treatment in a residential institution are classified as follows: (1) "Sanatorium cases"—cases in which permanent improvement or recovery can usually be anticipated; (2) "hospital cases"—cases in which only temporary, though possibly prolonged, improvements may be anticipated. The latter group includes: (1) Patients who may be expected to recover considerable ability to work; (2) patients admitted for a short term for educational treatment; (3) patients with advanced disease, many of whom improve greatly under institutional treatment; (4) advanced cases requiring continuous medical care and nursing; (5) cases requiring special observation for the purpose of diagnosis, or to determine the best form of continued treatment. An important section is devoted to a consideration of the care of chronic and advanced cases of phthisis, and concerning these the following conclusion is arrived at: "Happily it is becoming more generally appreciated that no scheme for the control of tuberculosis in an administrative area can be regarded as satisfactory which does not make provision on a considerable scale for the institutional treatment of advanced cases of consumption, beyond what in most areas has been so far provided." Finally, the all-important problem of

housing in relation to the prevention and treatment of tuberculosis receives brief consideration. We quote the concluding paragraph: "Housing and institutional treatment for tuberculosis cannot properly be regarded as alternatives. They are necessary complements to each other, and there must be increased expenditure in both directions. Housing is a problem in two divisions: For the healthy and for the sick. Special housing in institutions is needed for the sick when the care which their condition requires is not available in the home of the patient. This is true, whether the patient will be cured by the institutional treatment or not. But it is the duty of administrators so to arrange the conditions of admission to and continued treatment in institutions that the provision will be used in the most economical and efficient manner possible, consistent with the welfare of the patients concerned."

SANATORIUM BENEFIT FOR LONDON.

The County of London Insurance Committee has recently had under consideration the following facts: The waiting list for the institutional treatment of tuberculosis is now just over 500; the number of beds available, all fully occupied, is 459; and the number of applications annually is approximately 2,500, of which some 2,000 are new cases. Only a certain sum is available annually for sanatorium benefit. The fund at the disposal of the committee for institutional treatment is that remaining after other expenses in the administration of sanatorium benefit have been met, and the question arises how best to make use of the limited funds available. Dr. Noel D. Bardswell, to whom as adviser to the committee the question was submitted, has reported as follows: "On principle, it may be stated that a long waiting list defeats the objects of the committee in that early and curable cases not infrequently develop into cases of advanced disease while waiting for a bed. At present the period of waiting is about ten weeks for men and seven to eight weeks for women. It is a matter of shortage of beds. At King Edward VII. Sanatorium I had to deal with this same problem of insufficient accommodation. There I made it my principle to regulate the waiting list so that the admission of patients could be gained within five weeks after acceptance. This plan long experience proved to be satisfactory to all concerned. At Midhurst, with an accommodation of 105 beds, I aimed at a waiting list of 20, and never allowed it to exceed 35. To secure this, the standard for eligibility for admission and the duration of residence had to be somewhat varied from time to time in accordance with the pressure upon the beds; in short, upon the number of applications for admission. The Insurance Committee have 459 beds. To admit patients within some four weeks of acceptance, the waiting list should be some 150. To maintain the waiting list at a workable figure, one of two courses is open: (a) to select from all cases recommended for institutional treatment those most likely to make a permanent recovery and to give them preference in the shape of several months' residence, the remaining patients receiving domiciliary or dispensary treatment; or (b) to give every one recommended institutional treatment who, in my opinion, is likely to benefit from it to the point of restoration in some degree of capacity for work, a minimum of

four weeks' residence, the period to be extended if it be deemed desirable and possible. This principle was adopted with much success at Brighton by Sir A. Newsholme, now principal medical officer of the Local Government Board, and was followed by myself at Midhurst. It is the course that I recommend. It insures that every patient who is capable of improvement has the opportunity of learning the principle of the treatment he should follow. Moreover, as a means of safeguarding from infection those associated with the patients at home or at work, a course of education in a sanatorium, even if limited to only a few weeks, is of inestimable value."—In accordance with this opinion the London Insurance Committee have decided to recommend for a minimum of four weeks' institutional treatment every insured person suffering from tuberculosis and likely to benefit by such treatment to the point of restoration of some degree of working ability.

NOTES AND RECORDS.

We offer warm congratulations to Sir Robert W. Philip, who has been unanimously elected by the Edinburgh University Court to the Chair of Tuberculosis which has recently been created in the University. This is the first professorship of tuberculosis to be founded in the United Kingdom. We trust all other British Universities will speedily follow so sensible a lead. Every medical school in the land should have on its staff an expert in tuberculosis, and connected with every teaching medical centre there should be a hospital, sanatorium, and dispensary devoted to the study and treatment of tuberculosis.

An Army Council instruction has been issued stating that owing to the difficulty of deciding in cases of officers invalided, and soldiers discharged, on account of lung tuberculosis, whether or not the disease is caused, or aggravated, by military service, it has been decided that in all cases where officers and soldiers have developed the disease during oversea service it will be regarded as caused, or aggravated, by military service. In all other cases the same conclusion will be arrived at, unless the medical board are satisfied that phthisis was present previous to the man's enlistment or to the granting of officer's commission, or that it was not aggravated by his service.

At the instigation of the institutional committee for the treatment of discharged soldiers, the public health committee of Edinburgh town council have instructed Dr. Maxwell Williamson, M.O.H., Dr. Guy, and Sir Robert Philip to submit a report on a proposal of the institutional committee that facilities should be given for the treatment of consumptive soldiers at Polton farm colony.

There is urgent need for the elaboration of systematic undergraduate and post-graduate instruction in tuberculosis. No time should be lost in arranging for the organization and administration of a comprehensive scheme which can come into action after the war. The tuberculosis movement cannot be expected to advance unless medical students and medical practitioners receive proper instruction in all aspects of the tuberculosis problem.¹

¹ See "Undergraduate Instruction in Tuberculosis," by Allen K. Krause, in the *Bulletin of the Johns Hopkins Hospital*, vol. xxvii., No. 317. Published at Baltimore, Maryland, U.S.A.

The Medical Research Committee of the National Health Insurance Commission, among the numerous subjects which they have under investigation, are dealing with certain aspects of the tuberculosis problem.¹ Dr. A. Stanley Griffith has been conducting studies regarding the types of the tubercle bacillus and the occurrence of tuberculous disease of the bones and joints and cervical glands in children. In Dublin, under Professor McWeeney's supervision, Drs. O'Kelly and O'Farrell have been investigating the types of tubercle bacilli in surgical tuberculosis among the children of Ireland. At Edinburgh, Dr. A. P. Mitchell has carried out a valuable piece of work on primary tuberculosis of the tonsils in children. Other investigations are in progress.

The important address recently delivered by Dr. Henry A. Ellis before the annual meeting of the National Association of Insurance Committees on "Statistical Problems of Tuberculosis Treatment" is now available in pamphlet form.²

Dr. A. Philip Mitchell's valuable studies on tuberculosis in children have recently been issued in convenient booklet form.³

Many valuable reports bearing on the tuberculosis problem as studied in different parts of the country have recently been published, and among them reference may be made to the following: Dr. Harold Kerr, Medical Officer of Health for the City and County of Newcastle-upon-Tyne, and Dr. W. H. Dickinson, the tuberculosis officer, have issued a special report on "The Influence of War Conditions upon the Death Rate from Consumption." Dr. G. Lissant Cox, Central Tuberculosis officer for Lancashire, has prepared an elaborate and suggestive "Report of the Central Tuberculosis Officer for the Year 1916." Dr. W. Allen Daley, in his annual "Report on the Health of the County Borough of Bootle for the Year 1916," furnishes statistical data and other information of much interest regarding the prevalence of tuberculosis and means for coping with the disease. From the Public Health and Housing Department of the Council House, Birmingham, comes a particularly detailed "Report on Tuberculosis during the Year 1916." The information given is not only of local interest, but bears on the problem as one of national importance. In a number of pages of carefully compiled data, particulars are provided regarding all the new and return cases which have been under observation. From the City of York comes the "Fourth Annual Report of the Tuberculosis Officer for the Year 1916," containing evidence of the conduct of much serviceable work organized on sound lines. Dr. Andrew Trimble has compiled an elaborate "Report of the Chief Tuberculosis Officer of the County Borough of Belfast for the Three Years ended March 31, 1917," which deserves study by all interested in tuberculosis in Ireland. "The Fifth Annual Report of the King Edward VII. Welsh

¹ See the Third Annual Report of the Medical Research Committee of the National Health Insurance Commission. Pp. 88. [Cd. 8,825.] London: His Majesty's Stationery Office, Imperial House, Kingsway, W.C. 2. 1917. Price 6d. net.

² "Statistical Problems of Tuberculosis Treatment under the National Insurance (Health) Acts." By Henry A. Ellis, M.B., Tuberculosis Medical Officer to the County Borough of Middlesbrough. Pp. 16. Newcastle-on-Tyne: Co-operative Printing Society, Ltd., Rutherford Street. 1917.

³ "Primary Tuberculosis of the Faucial Tonsils in Children," reprinted from *The Journal of Pathology and Bacteriology*, vol. xxi., 1917; and "Surgical Tuberculosis and Child Welfare," reprinted from the *Edinburgh Medical Journal*, May, 1917.

National Memorial Association for the Year ended March 31, 1917," is a record of serviceable endeavours in the Principality. There are numerous tables which present statistical data in convenient form. Dr. J. King Patrick has prepared an interesting account of the work of the Jubilee Sanatorium, Dalby, Queensland. All these reports contain records of much excellent work conducted under exceptional difficulties; each affords abundant evidence of the urgent need for prompt action in dealing with tuberculosis. A consideration of the reports which are being issued by medical officers of health or tuberculosis officers impresses an unprejudiced critic with the marked individualism which characterizes all forms of British endeavour. These "find your own way" and "go as you please" methods have many advantages, and doubtless make for originality in thought and enterprise in experimentation. Clearly, in dealing with a subject like tuberculosis, we must avoid bureaucratic control and all cast-iron procedure, and be quick to see new possibilities and seize on fresh lines for advance. But, viewed from a scientific standpoint, there are grounds for regret at the lack of uniformity in size, shape, and contents of these reports. Much valuable material is contained in these annual productions, and considerable time and labour are spent on their preparation, and yet so few people read them, and so little permanent benefit results from their publication. The reports are more or less useless for scientifically directed statistical investigations, and, generally speaking, do not afford reliable data which can be employed for comparative studies. We hope that the time is not far distant when a central brain centre will be established which will elaborate means whereby all these valuable peripherally developed impressions will be co-ordinated and made available in a form which shall be for the benefit of one and all. We shall be glad to receive expressions of opinion regarding this matter.